MOBILEGUARDIAN
DESIGNED FOR SCHOOLS. LOVED BY PARENTS.

# Impact of EdTech in Asia-Pacific


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Researched and written by Goodman Lantern for Mobile Guardian

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# Introduction

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# Introduction

Education is a fundamental human right, as enshrined in the Universal Declaration of Human Rights. Yet, throughout history, access to education has been anything but universal. The disruptions and closures in the wake of the COVID-19 pandemic created the worst education crisis in recorded history. They also spotlighted a situation where, even before the pandemic, 50% of children in low- and middle-income countries were living in learning poverty. **The World Bank expected this figure to rise to 70% due to school closures and uneven approaches to remote learning.**[1]

Countries in Asia-Pacific, as elsewhere, responded to disruption by adapting traditional teaching methods.

**They pivoted to hybrid education and invested in enabling technologies. They also worked to ensure these technologies were equitably accessible.** [2]

This paper examines contemporary trends in education technology (commonly called “EdTech”), the challenges and opportunities it presents, and the impact it is having across Asia-Pacific countries.


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# Introduction to EdTech

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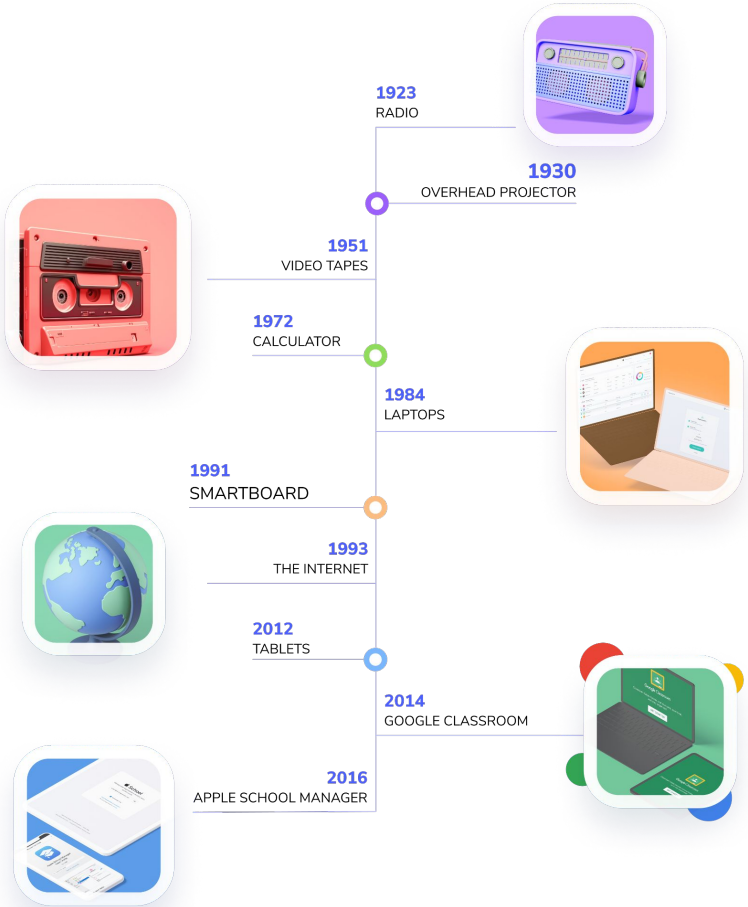
## A definition

***"EdTech" refers to the use of information technology tools to facilitate more engaging, inclusive, and individualised learning.[3] EdTech is delivered via a combination of hardware and software. These include tablets and computers, interactive whiteboards, online content delivery platforms, and massive open online courses.[4]***

## A brief history of EdTech

In a way, the history of EdTech can be traced all the way back to paintings made on cave walls to illustrate ideas. In a more contemporary context, radio was introduced in classrooms in 1923, followed by overhead projectors in 1930. Videotapes came in 1951, and photocopiers in 1959. Handheld calculators were revolutionary when they entered classrooms in 1972, as were laptops when they became available 12 years later. Smartboards represented a technological leap forward when introduced in 1991. But this was nothing compared to the impact of the internet, which officially became available to the public in 1993.

Tablets made their way into classrooms in 2012 and remain one of the biggest EdTech investment focuses for many schools.[5] Google Classroom was launched in 2014, garnering an estimated 10 million users within a year. It was a likely driver of the adoption of predictive learning analytics at the end of the 2010s.[6] Apple School Manager was released in 2016.

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## Factors influencing the growth and development of EdTech globally

COVID-19 caused educational institutions worldwide to close. It forced educators to use various solutions – including radio, TV, and online learning – to enable remote learning. The pandemic also drove a proliferation of apps and platforms and created a booming industry. **The EdTech market is expected to grow by $112.39 billion by the middle of 2025.**[7] This growth is also driven by rising numbers of smartphone users, greater internet access coupled with cheaper data, big data analytics, and the trend towards personalised education.[8]

At the time of writing, lockdowns have eased and schools reopened in most parts of the world. Yet, the approaches adopted during this time – much like those adopted in the business world – look set to stay.

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# Contemporary trends in EdTech

EdTech is being introduced in a wide variety of ways for an equally wide range of challenges. These are some of the key trends impacting the sector:

## Digitisation of curricula

Schools have embraced digital K-12 materials. A big driver for this is cost: Although printing costs tend to account for around 10% of a book's price,[9] ebooks are typically more than 50% cheaper than their paper counterparts.[10] The pandemic also proved a major catalyst, with more than 60 million tablets and notebooks purchased by educational institutions worldwide between late 2020 and early 2021 alone.[11] **Smartphones are also increasingly seen as a viable option for education, a trend that should be aided by the smartphone penetration rate in Asia-Pacific expected to grow to 83% by 2025, up from 68% in 2020.**[12]

Software solutions have also been on the rise. The two major players in the learning platform spaces are Google Classroom (released in 2014) and Apple School Manager (released in 2016). Google Classroom includes assignment creation, grading and feedback features, classroom management and communication tools, plagiarism detection tools, and analytics features and device enrolment features.[13] **It grew from 40 million users in 2020 to 150 million in 2021.**[14] Apple School Manager offers automated enrolment in mobile device management (MDM) solutions, integration with student information systems, managed IDs for all users, and full control of purchased apps and books.[15]

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## K-12 online education

Although in-person learning has resumed in classrooms, many schools are now offering permanent remote or hybrid learning options. McKinsey identifies four factors shaping this space:[16]

- Increased competition among online education providers
- Market consolidation
- An influx of investment in education
- Rising standards for online education quality and experience.

## Edutainment

Edutainment has been given a shot in the arm by the pandemic, which spurred the diversification of conventional schooling methods. However, educators have been using blends of entertainment and education for decades. Today's children spend much of their time engaging with digital entertainment in general. **A survey of 11 socioeconomically diverse countries found that watching videos and gaming are the most popular online activities for children aged 9 to 17.** So, it's only natural to use this medium to deliver education.[17]


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## Augmented and virtual reality

Immersive technologies have been considered for their educational value since the 1990s. Recent technological advances, coupled with decreases in hardware costs, have made them more broadly feasible. Augmented and virtual reality applications are enabling more immersive online classroom experiences and interactive virtual field trips, allowing learners access to museums and galleries worldwide and facilitating closer connections between students and tutors.[18]

## Mobile and blended learning

Mobile devices such as smartphones and tablets are increasingly incorporated into blended learning experiences. The pandemic has accelerated the growth of 1-to-1 computing in the K-12 environment, where every student uses a device to access digital course materials and the internet. In the US, for example, 90% of school district leaders said they were providing a device to all middle and high school students.[19] In **Singapore, all Secondary 1 students will own a school-prescribed personal learning device (PLD) by 2024.**[20]

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# The state of education in Asia-Pacific

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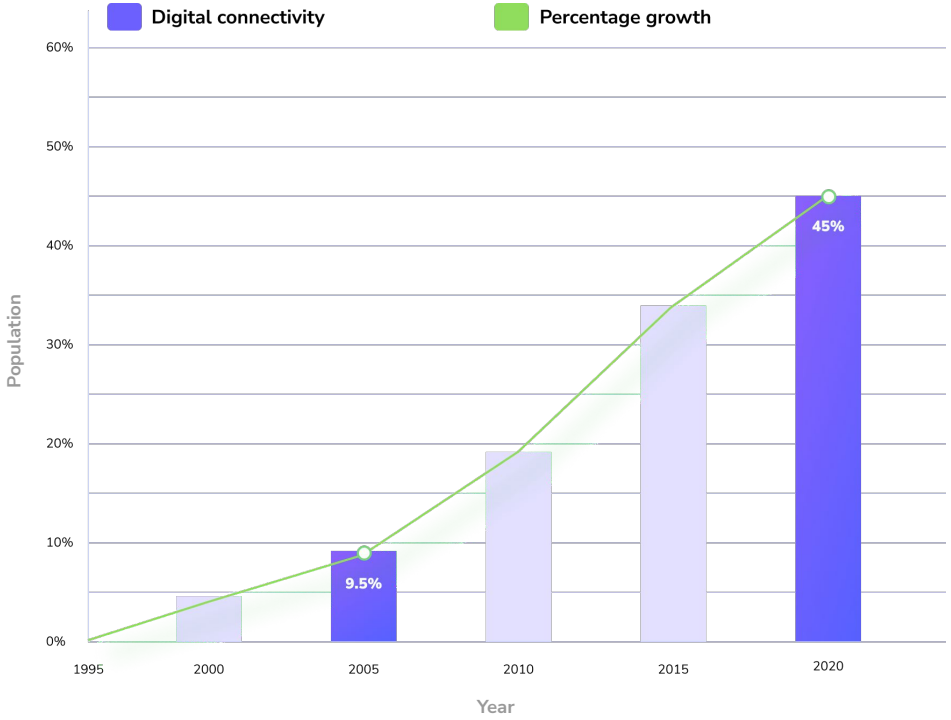
# An Overview

**Access to and quality of education** varies across the Asia-Pacific region. The region has seen notable improvements in recent years, many of which the COVID-19 pandemic has sadly reversed. **Digital connectivity has grown hugely throughout the region over the past ten years. 45% of the population is now online in 2020, compared with 9.5% in 2005.** Unfortunately, digital inequalities have also grown, as laid bare by the pandemic. These inequalities affect especially low-income communities, rural areas, and small island developing nations. Individuals lacking digital literacy and those from disadvantaged backgrounds are also impacted. Women and girls experience reduced access to the internet, mainly due to cultural prejudices, making digital learning less feasible for them, too.[21]

Infrastructure development is key to increasing connectivity across the region. Around 131 million people still lack electricity, particularly in remote areas,[22] and only 13% of the total population have fixed broadband internet subscriptions.[23] Progress has been made in many regions, however. In Thailand, for example, the Net Pracharat project cut the number of rural households without internet access by half, while the Malaysian government's broadband plans helped the nation achieve the Broadband Commission for Sustainable Development's affordability threshold.[24]

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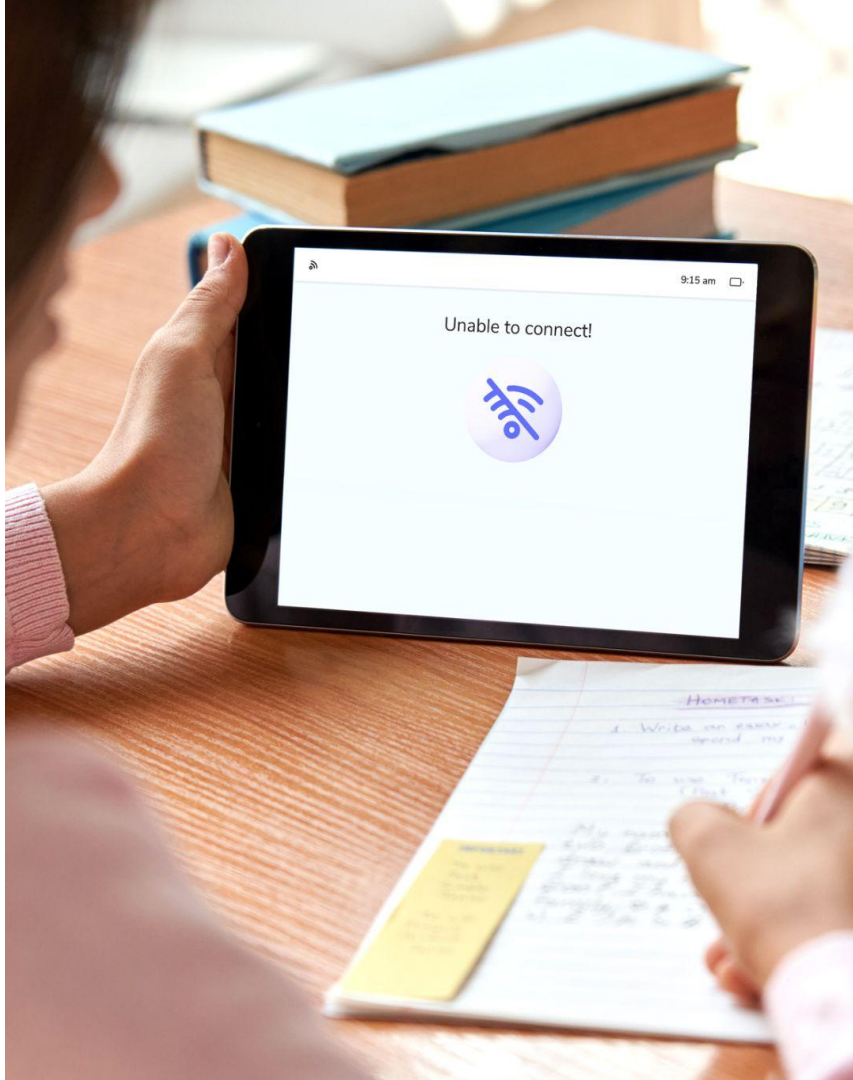
# Educational challenges in Asia-Pacific

Even before COVID-19, 35 million children in the Asia-Pacific region lacked access to education. This was due to factors such as socioeconomic circumstances, location, disability, ethnicity, gender, or language. **After the pandemic hit, most countries were able to institute remote learning programmes. However, 80 million pupils could not access these due to a lack of digital devices or infrastructure.** The pandemic continues to impact the education of 325 million children in the region.[25]

**The fifth Asia-Pacific Meeting on Education 2030 made three recommendations for the region:**[26]

- Reform policy and financial mechanisms to enable more holistic and flexible learning while broadening the interpretation of literacy and numeracy.
- Align curricula, assessments, and pedagogy to reflect the needs of different students, and train teachers to understand these changes and provide alternative learning avenues.
- Improve monitoring and coordination between education ministries and institutions to consolidate data and track equity and inclusion.

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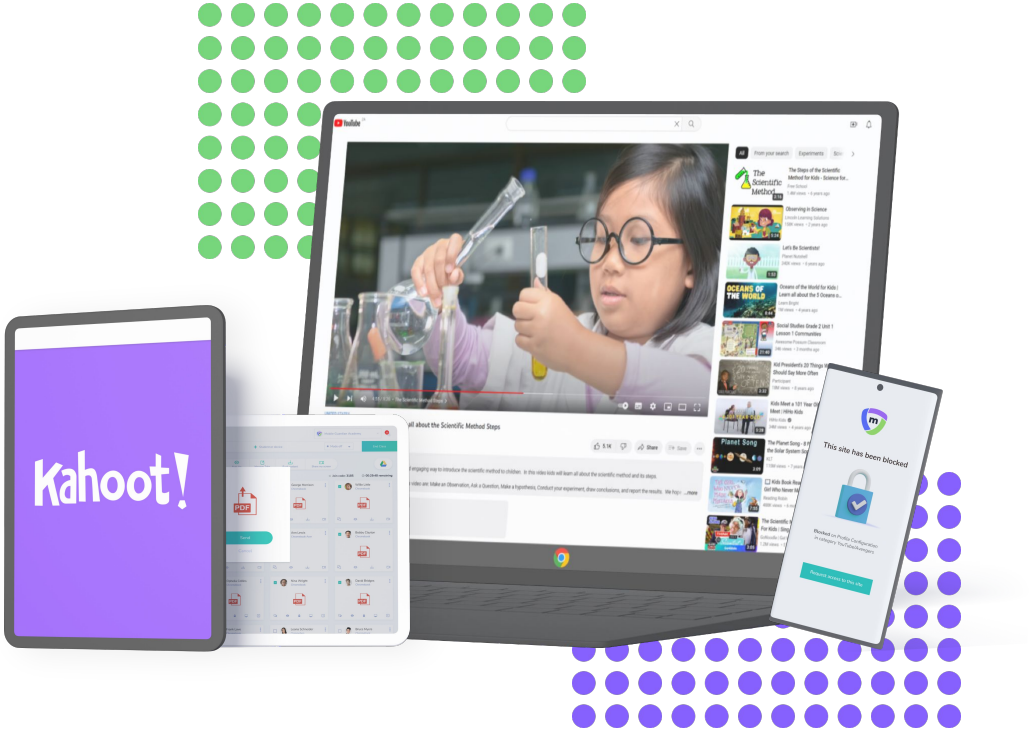
## Issues relating to device usage

PLDs such as laptops, Chromebooks, tablets, and smartphones provide a wealth of benefits to students. However, they also introduce new challenges to learning, including the possibility of students accessing inappropriate or harmful materials, exposure to child predators, distraction from schoolwork, social disconnect, and cyberbullying.[27]

To mitigate these issues, schools need to implement MDM software, which centralises management of learning devices, allowing educators to buy and push apps and learning materials, remove distractions, control content access, onboard new devices, and generate detailed usage reports.[28]

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# Overview of EdTech in Asia- Pacific

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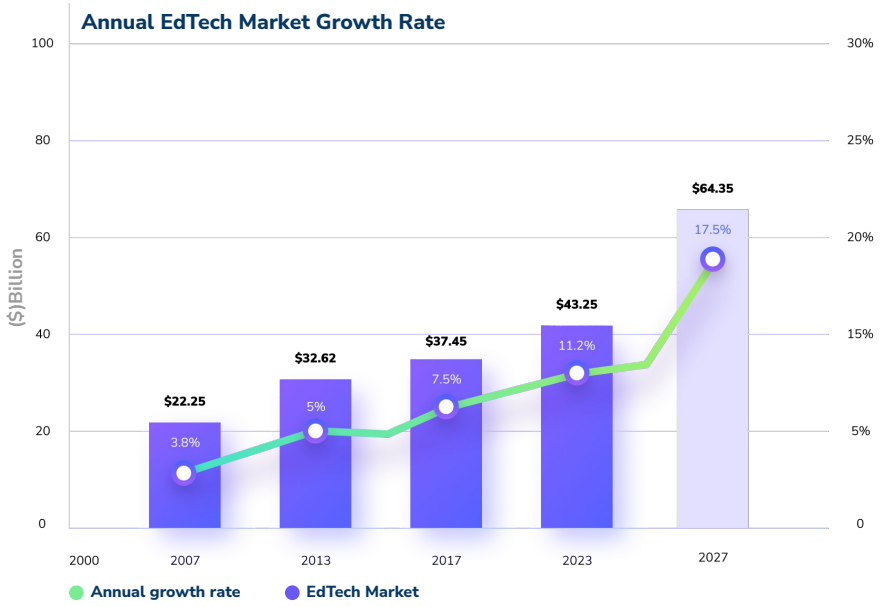
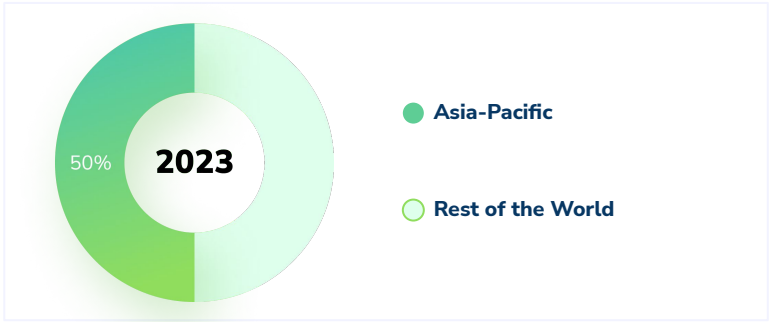
**Asia-Pacific is the fastest-growing EdTech market in the world, with the market expected to grow at a compound annual growth rate of 17.5% to $64.35 billion by 2027.**[29] EdTech companies in the region are taking a slightly different course to many of their Western counterparts. A number of them are creating their own courses and curricula centrally aligned to students' needs, with a higher level of live online engagement as opposed to pre-recorded courses.[30]

## Factors influencing growth and development

- The region is already home to **4.3 billion people, 60% of the global total. This number is expected to reach 4.9 billion in 2030.**[31][32]
- At the same time, the region's middle class is growing rapidly, with 1 billion Asians predicted to move into this economic segment by 2030.[33] By 2040, the average Beijing resident, for example, will spend eight times more on household goods and services compared to 2005.[34] This will almost certainly translate into greater spend on tech-enabled education.
- **Asia-Pacific will account for 50% of global GDP by 2030.**[35] Being such a significant driver of global economic activity will most certainly foster huge investment in modern education systems.

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# Opportunities presented by EdTech in Asia-Pacific

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## Democratising access to education

A Cambridge-ASEAN roundtable policy brief identified continuing the recent **acceleration in digital transformation as key to increasing access to education for vulnerable groups.** However, it cautioned that blended learning is more effective than online only. It also suggested that government departments work together to address the underlying socioeconomic and cultural barriers to education.[36]

## More flexible learning opportunities

**Adding technology to the education mix increases versatility and flexibility for teachers and students**, particularly those who may struggle to attend school because of physical or mental challenges or those who need to assist their families by caring for relatives or working a part-time job.

## Making education available in remote areas

When coupled with targeted investments in infrastructure and enabling hardware, **EdTech has the potential to provide education to children in remote areas.** In Vietnam, for example, the education ministry leveraged partnerships with non-profit organisations and the private sector to provide internet access and training to millions of teachers, as well as tablets and internet access to children in remote areas and those from minority groups.[37]

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# Challenges of EdTech in Asia-Pacific

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## Uneven digital infrastructure

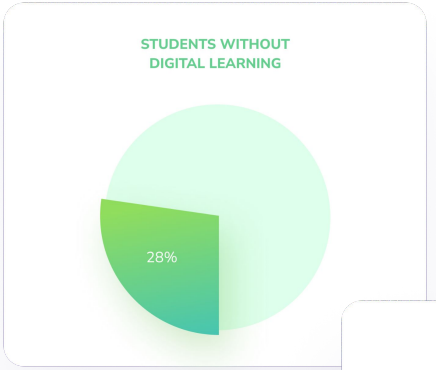
**The pandemic exposed, and in many cases exacerbated, the digital divide between children** from more fortunate backgrounds and those from poorer ones. Many of the latter lack internet connectivity. They rely on physical learning resources and, in some cases, TV and radio. **UNICEF estimates that 28% of children in South Asia, East Asia, and the Pacific cannot access broadcast or digital learning.**[38]

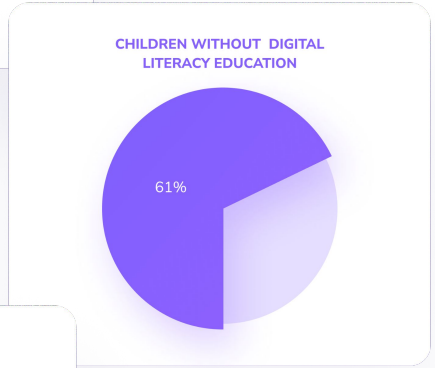
## Low digital literacy rates in some areas

Along with competitive markets and accountable institutions, digital literacy is essential for students to gain meaningfully from digital technologies. [39]However, from a survey conducted in 2020, **UNICEF found that 61% of children across ten Southeast Asian countries were not receiving any digital literacy education.**[40]Moreover, digital literacy differed widely between more and less developed nations: Self-reported rates were lowest in Myanmar and Vietnam and highest in Singapore and Malaysia.[41]**Digital literacy is important for teachers, too,** not simply in terms of learning how to use information and communication technologies but also in understanding how to combine content, technology, and pedagogy.[42]

## Public sector limitations

The transition to virtual and technology-aligned learning has tested the capacities of education administrations. **Partnerships between governments, the private sector, and civil society organisations are key** to overcoming these limitations, enabling the transformation of teaching, and implementing EdTech solutions, particularly in underserved areas.[43]

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# Case Studies

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# Singapore

Singapore has a history of embracing technology in education. As early as 1997, the Ministry of Education (MOE) announced a plan to develop digital literacy.[44] The plan in its current form is intended to enable the MOE to respond to technological and circumstantial changes to ensure EdTech is used effectively.[45] Current initiatives include infrastructure upgrades, integration of EdTech into classrooms, and Edumall 2.0, an online learning resources portal.[46]

The nation is adopting a 1-to-1 approach as part of its National Digital Literacy Programme, with secondary school students using PLDs in the form of tablets, Chromebooks, or laptops to learn how to use software and hardware productively. The roll-out for Secondary 1 students will be

completed by 2024 and for all secondary school students by 2028.[47] All devices have a device management application pre-installed to monitor online activity and prevent access to non-educational materials.

The devices are used alongside the Singapore Student Learning Space (SLS), which contains a host of learning resources comprising almost the entire curriculum. This enables students to learn at their own pace and in accordance with their interests and needs. The SLS is not intended to replace the classroom experience but rather to enhance it, with a focus on collaborative learning that gives students more agency.[48]


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# Philippines

The Philippines has seen significant improvements in countrywide infrastructure, increasing access to electricity and the internet. However, school infrastructure has not kept pace with this development. The lack of a national ICT policy also means more innovation happens among local government bodies rather than flowing down from the national government. Moreover, while technical and higher education institutions have embraced EdTech, uptake has been poor among K-12 schools, which are typically more traditional. This is likely due at least partly to a prevailing lack of digital skills among teachers.[49]

In 2021, a partnership between the Department of Education and the Department of Information and Communications Technology saw the establishment of the Publication Education Network. This was intended to accelerate digital connectivity for public schools and Department of Education offices across the country, providing students with access to government and commercial learning resources.[50]

One of the world's fastest-growing economies, the Philippines also represents a burgeoning market for EdTech solutions, with more than 70 emerging and almost $500 million in venture capital investments in five years.[51] Public-private partnerships are driving hardware and software distribution, including those with Microsoft, Intel, Facebook, Smart Communications, and Globe Telecommunications. However, there is little development of custom content for the local market and no efficient distribution channel for such content.[52]


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# Indonesia

Despite being the largest economy in Southeast Asia, Indonesia faces low electrification and internet access rates, even for a developing nation. There is also a general need for digital skills. However, the student population uses computers and smartphones widely, which, along with low-tech options, increases access to EdTech.[53]

The government is committed to reform and open to partnerships. Still, this commitment has yet to result in a significant increase in spending on ICT in education, which is far below that spent on ICT in most other sectors. It is also one of the countries the least invested in ICT in education in the region. Despite this, the country has a growing EdTech startup sector – both commercial and non-profit. Yet, the decentralised nature of the education system means these companies must negotiate with multiple stakeholders, making it difficult to scale their businesses and EdTech solutions.[54]

Indonesia is home to Southeast Asia's largest EdTech company, Ruangguru, which dominates the market and investment capital. The company offers a cloud-based mobile app and learning management system with tutoring, curriculum exercises, and exam practice. It has partnered with over 200 organisations and 400 schools across the country, recording more than 30 million users.[55][56]


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# Conclusion

As the fastest-growing EdTech market globally, the Asia-Pacific region presents enormous opportunities for EdTech solution providers. These solutions should ideally be tailored in consultation with local education authorities, which is why sustainable public-private partnerships are key.

More than merely distributing hardware and software is needed, however. Teachers should be trained and empowered not just to use these technologies but also to integrate them effectively into new, forward-thinking pedagogies that prepare children for a digital future. There is also a need for nations to adopt a holistic approach across multiple government departments and organisations. This way, they can efficiently address the factors that affect access to education and utilise EdTech to realise the fundamental human rights of all children.

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# About Mobile Guardian

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MOBILEGUARDIAN
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**Mobile Guardian** provides complete 1-to-1 mobile device management solutions for K-12 educators. With a product designed for education, Mobile Guardian is suitable for device programs that scale from ministerial device management programmes down to single classroom environments.

Mobile Guardian strives to ensure every device in the hand of every child is protected.

**For more information, contact us or visit our website.**

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