

### Introduction

**By June/July 2021, 19.6 million tertiary students in the East-Asia Pacific (EAP) region were still affected by the pandemic.** Increasing evidence indicates that over 100 million children will suffer a range of learning losses and fail to reach minimum proficiency in age-appropriate reading levels as a result of the pandemic (Azevedo, Hasan, Goldemberg, Iqbal & Geven, 2020; UNESCO, 2021a). The reopening of schools and campuses have also not been without challenges, as multiple waves of COVID-19 infections play a determining role. For example, a recent COVID-19 wave spreading across Southeast Asia, particularly in Indonesia, Malaysia, Vietnam, Myanmar and Thailand at the end of July 2021, has prevented the re-opening of universities and disrupted higher education for the second year running (Yamin, Lamubol, Leung, Wadud, & De Alwis, 2021). By mid-2021, some countries, such as China, Vietnam, Papua New Guinea, Singapore, and Timor-Leste had fully opened campuses (UNESCO, 2021a).

**COVID-19 has changed trends in the internationalization of tertiary education.** Around 85% of institutions in the EAP were affected by international student mobility due to COVID-19. Almost half of these institutions reported that international students were grounded at their own institutions, while at the same time many exchange programs with some countries had been cancelled. More than 60% of universities adapted by revising program logistics and agreements and engaging in virtual mobility and/or collaborative online learning.<sup>2</sup> The pandemic might have further caused many students to change their study destination preferences. For example, a study of almost 3000 students from China and Hong Kong show that 84% of students do not express any interest in studying abroad after the pandemic. For those who do wish to study abroad, three of the top five destinations are in the East Asian region (Japan, Taiwan and Hong Kong), while the United States, and the United Kingdom are the most popular options beyond the immediate region (Xiong, Mok, Ke, & Oi Wun Cheung, 2021).

**The experiences of students and staff in the EAP region, however, have been mixed.** Malaysia has produced some publications on students' experiences of online learning, including confirmation that the digital divide mirrors existing socioeconomic inequalities, and providing recommendations to support students in coping with online learning (Al-Kumaim et.al, 2021; Azman, N. & Abdullah, 2021; Selvanathan, Hussin, & Azazi, 2020). In the Republic of Korea, large-scale sentiment analysis of English-speaking foreign students and staff's Twitter posts show a balance between positive responses about the ease of accessing course materials and classes, online communities that played a big role in sharing resources and providing emotional support, and the creativity shown by academic staff, institutions and students to adapt to online teaching and learning. Negative sentiments were mainly about mental fatigue, potential job losses in academia, student concerns about the quality of learning and how that will influence their futures, and institutions being overwhelmed institutions (Aiyanyo, Samuel & Lim, 2021). Using the Republic of Korea as a case study for the future of online learning in higher education, the World Economic Forum (WEF, 2020) concludes that even in such contexts with optimal Information Technology (IT) infrastructure and proactive government responses to online education, online platforms and technologies are not ready to effectively deliver educational content like in face-to-face classes. This is primarily because of research showing low satisfaction from students, perceptions of lowered quality education in online contexts, dissatisfaction with tuition fees, a lack of policy to guide the implementation of online learning, and a lack of appropriate digital skills from teachers, among others. The impact of the pandemic on global tertiary education is summarized in Box 1.

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<sup>2</sup> IAU – COVID-19 Global Impact Survey

### Box 1: Higher education survey assessing the impact of COVID-19 on the sector

In 2020, respondents from 57 countries helped shape our understanding of how COVID-19 has impacted the higher education sector. Some key areas of impact include:

- **Teaching and learning.** Over half of the countries were using a hybrid model of teaching and learning, while a third used primarily online platforms.
- **Access:** High-income countries report easier transitions, with lower-income countries having significant challenges with digital inequalities.
- **International mobility:** Innovations in virtual mobility could compensate or even replace physical mobility.
- **University staff:** Most countries did not report reduction in employment, however, private institutions did suffer salary cuts and other financial challenges.
- **Disruption of research and extension activities:** 41 out of the 57 countries reported delays, suspension, or cancellation of research activities.
- **Widening inequalities within higher education sectors:** Financial support from the government and external sources are crucial to the survival of higher education institutions.
- **University operations:** Campus maintenance and services expenditures have been rerouted to focus on infrastructure and other technology-related expenses.
- **National challenges:** Health and adaptation to new modes and models of teaching are the top concerns for students and institutions.
- **Transition from higher education to work:** The significant reduction of job opportunities makes the transition from higher education to the labor market more difficult. Employers are also seeking applicants with higher technology skills.
- **National priority:** Strategic options for country-specific response are to improve infrastructure and availability of digital devices for online or distance learning as well as support for teachers and more international collaboration in research and policy dialogues.

(UNESCO, 2021b)

### Educational technology (EdTech): narrowing or widening equity gaps?

The potential of EdTech to enhance learning has been recognized globally, including within the EAP region, prior to the COVID-19 pandemic. In Australia, the number of EdTech firms doubled between 2017 and 2019.<sup>3</sup> Similarly, in Indonesia, the number of EdTech firms has grown consistently since 2013.<sup>4</sup> Recently, China and India are standing out among the leading countries in terms of EdTech startups and investments, with China being a leader in terms of EdTech investments, despite recent policy changes to curb the sector.<sup>5</sup> The EdTech market in the EAP region is still dominated by K-12 platform and programs, although many other segments, such as Pre-K tutoring, coding lessons, upskilling, and tertiary education are gaining more traction.<sup>6</sup> In Vietnam, the uptake of e-learning and educational technology has been quite advanced in some instances, while lacking uptake in others. The assumption is that that a lack of uptake does not necessarily indicate unawareness of the potential of such educational tools, but rather an acute awareness of the need to apply EdTech in tertiary institutions (Pham & Ho, 2020). Some key considerations for mainstreaming EdTech are shared in Box 2.

<sup>3</sup> <https://edugrowth.org.au/programs/ecosystem/australian-edtech-market-census-2019/>

<sup>4</sup> <https://openknowledge.worldbank.org/bitstream/handle/10986/33762/EdTech-in-Indonesia-Ready-for-Take-off.pdf?sequence=1&isAllowed=y>

<sup>5</sup> E.g. see <https://www.economist.com/leaders/2021/08/14/xi-jinpings-assault-on-tech-will-change-chinas-trajectory> and

<sup>6</sup> <https://www.plugandplayapac.com/post/market-research-on-the-edtech-industry>

**The presence of EdTech had been growing in tertiary education prior to the pandemic.** Many universities were investing in quality online learning programs and provide virtual museums, laboratories, and exhibit halls. Increasing demand for micro-credential programs also provide business opportunities for tertiary institutions. These programs can range from certificate courses, short courses, or other accreditation and licensed programs. There was also a trend of increasing use of artificial intelligence and data analytics to improve education, particularly in institutional data management systems, grading systems, library services, and even disability support. In 2020, more than 87% of Learning Management Systems migrated to Cloud-based systems, of which an annual growth rate of 24.59% is expected between 2021 and 2019 (Research and Markets, 2021).

**The investment in EdTech saw major increases during the COVID-19 pandemic.** Online learning platforms, such as edX, saw a fifteen-fold increase in use during April 2020, and a 161% increase in new registrations between November 2019 and November 2020.<sup>7</sup> Over the course of just one week in 2020, the Microsoft Teams Application saw its number of users increase from 32 million to 44 million, with users in China doubling even after coronavirus restrictions were lifted.<sup>8</sup> It is forecasted that the global EdTech market will grow between 14.5% and 16.4% per annum until 2025.<sup>9</sup> This spurred increased investment in EdTech startups, with EdTech funding reaching a peak in 2020 with a total of \$16 billion invested globally.<sup>10</sup> The COVID-19 crisis is driving increased uptake of technology to replace, supplement, and enhance teaching and learning in the context of distance learning.

**Box 2: Key considerations to deploy digital strategies in response to COVID-19 and its effects on learning**

The Asian Development Bank positions EdTech tools and approaches as important contributors for education systems to bounce back from the pandemic, however, the optimal use of EdTech requires cognizance that the most important goal of education is learning. To facilitate a focus on learning in recovery strategies, the Asian Development Bank proposes six overarching priority actions when deploying digital strategies to address COVID-19:

1. Implement flexible approaches to learning to ensure uninterrupted learning, even when students return to schools.
2. Revamp teacher training and support teachers to cope with the requirements and challenges accompanying new learning environments.
3. Develop high-quality digital content in partnership with national and global institutions and drawing on regional and global standards.
4. Ensure equal learning opportunities for students who lack access to devices, connectivity, or a favorable learning environment at home.
5. Articulate clear policies toward assessments and examinations, certifications, and transition to higher levels of education, while formulating new approaches to testing and examination.
6. Provide for innovative financing arrangements and partnerships to support different ways of acquiring, implementing and scaling the use of technologies to improve learning.

Source: Asian Development Bank. 2021. COVID-19 and education in Asia and the Pacific. <https://www.adb.org/sites/default/files/institutional-document/672491/covid-19-education-asia-pacific-guidance-note.pdf>

<sup>7</sup> <https://www.cnbc.com/2021/03/26/online-learning-boomed-during-the-pandemic-but-soon-students-return-to-school.html>

<sup>8</sup> <https://www.theverge.com/2020/4/9/21214314/microsoft-teams-usage-coronavirus-pandemic-work-habit-change>

<sup>9</sup> [https://insights.edtechxurope.com/hubfs/EdTechX%20Global%20Report%202020%20\(Teaser\).pdf](https://insights.edtechxurope.com/hubfs/EdTechX%20Global%20Report%202020%20(Teaser).pdf)

<sup>10</sup> <https://www.holoniq.com/notes/global-edtech-funding-2021-half-year-update/>

**While EdTech brings with it the potential to enhance learning, concerns about cybersecurity and digital equity remain.** Tertiary institutions and their staff and students might be inexperienced in using EdTech, making them vulnerable for phishing attacks and consequent malicious techniques such as ransomware, credential theft, and sensitive data theft. Strengthening institutional security systems, including protocols for own device use, and large-scale awareness campaigns are needed to preventing such cybercrimes. In the EAP and other parts of the world, many students from lower socioeconomic circumstances and those in remote areas struggle with reliable infrastructure or devices that enable participation in education. There is little doubt that EdTech will continue to play a bigger role in education, which also implies that there needs to be more explicit focus on ensuring access, digital skills, and means to provide safe use of EdTech for all.

**Education in the EAP region had been characterized by inequities prior to COVID-19.** In Malaysia, the shift to online learning has exacerbated existing inequalities among students, particularly regarding limited access to the Internet and having to study by using inappropriate devices. Besides the negative educational impact, such inequities also impact on students' mental health and emotional well-being (Azman, N. & Abdullah, 2021). Similarly, in the Philippines, online learning has had a significant impact on rural students' ability to keep up with their academic work. Many students from rural areas are from lower socioeconomic circumstances and are limited to using mobile phones to access learning materials and engage in teaching and learning. Internet access is usually poor in rural areas, and many students from rural areas are not adequately digitally literate to optimally engage with EdTech (Gocotano et al., 2021).

**The digital divide likely contributes to widening learning gaps during the pandemic.** Digital inequalities are rooted in, and exacerbated by socioeconomic and other inequities. Despite a current lack of data that illustrate the impact COVID-19 responses have had on student learning in tertiary environments, it is safe to assume that many students will have had a disrupted learning experience (Salmi, 2020). Student learning during the pandemic seems to be greatly varied and depends on whether students had appropriate connectivity, devices, and digital skills to engage with academic work. Another equity concern magnified by the pandemic is gender. More than 1.2 million girls could drop out of school due to COVID-19 in the EAP region (Unicef, 2020). Previous evidence shows that public health outbreaks have a particular gendered impact that exacerbates existing inequalities, many of which have been present in the EAP for some time (Price, 2020). Contributing factors to girls and young women not returning to education might include lack of accessing education due to infrastructure challenges, or because of the longer-term socioeconomic impact the pandemic will likely have on households, resulting in keeping girls out of school to help generate income, increasing their household responsibilities if parents need to generate more income, early or forced marriage, and so forth. However, the risk for males not returning to tertiary study seems even higher than for women. Predictions for at-risk students, calculated by the net change in total enrolment in 2020 between COVID-19 and non-COVID-19 scenarios indicate that the number of at-risk males increase by over 3% (Table 1). In essence, this means that the predicted economic impact of the pandemic is likely to affect male student enrolments more, arguably because of the need to help generate income for families (UNESCO, 2020; UNICEF, 2020).

*Table 1 Risk of students not returning to study*

	At risk students	% increase of at-risk students
Female tertiary	739,000	1.94%
Male tertiary	1,102,000	3.13%

**Students and staff's digital skills influence the quality of teaching and learning.** The ability to use EdTech, including software and technological platforms optimally to facilitate teaching and learning determine the quality of the educational experience. New technologies are being developed at a faster pace than ever before, implying that teaching staff need to continually adapt their teaching styles to the new realities and potential of facilitating learning in ways that best serve their students. Beyond teachers, students also need digital skills to

navigate EdTech, with studies showing great variance in students' digital skills. For example, students at the University of the South Pacific reported moderate to strong digital skills and a general positive attitude towards e-learning, which in conjunction with the institution's involvement with distance learning prior to the pandemic, prepared students for a relatively successful transition to online learning (Johnson, Reddy, Chand & Naiker, 2021). Figure 1 shows that 87% of a sample of students studying in Hong Kong who identified themselves as having poor IT skills, also experienced online learning as least effective. However, even with good self-rated IT skills, almost half of the student sample did not see online education as effective. The reasons these students gave for perceiving online education as ineffective include the stability of internet connections, and the lack of in-or after-class interactions with peers and teachers respectively (Mok, Xiong, & Bin Aedy Rahman, 2021).

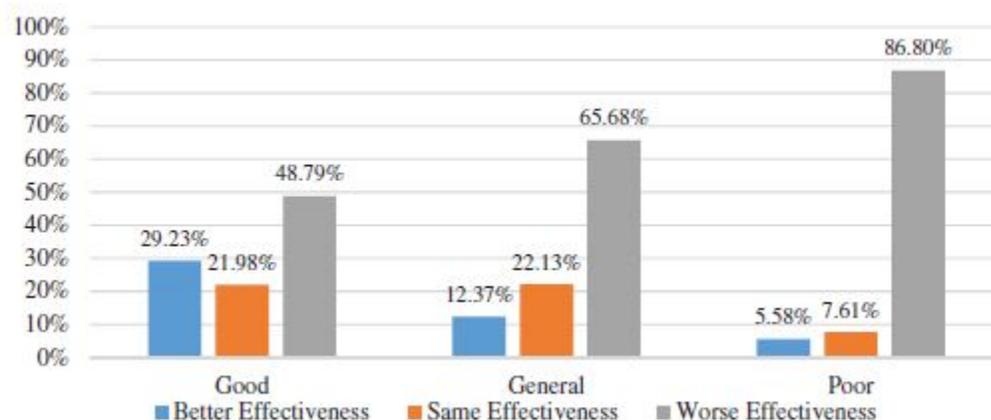


Figure 1 Students' experience of online learning as it relates to their IT skills

**EdTech is a means to an end and not the end in itself.** While it is inspiring to see the growth of technology in education and how it can enable access to learning, resources and enhance communication, it is important to reflect on the meaning of teaching and learning and how this changes when introducing different forms and levels of technology. A policy landscape that recognizes these nuances is necessary to guide institutions towards innovations that will ensure that education is equitable, inclusive and accessible to different groups. In the Philippines, for example, Joaquin, Biana & Dacela (2020) argue for a policy landscape that is founded on a comprehensive assessment of the country's readiness to offer programs that deviate from traditional modes of teaching and learning. This might include assessing infrastructure needs, teaching capacity and teacher skills, students' resources and educational needs, collaborating with EdTech companies, and so forth.

### What does tertiary education look like beyond the pandemic?

In 2020, the World Bank's response to how tertiary education sectors in the EAP region were adapting to the pandemic recommended several interventions at policy, strategic and operational levels to prepare these sectors to bounce back and recover from the impact of the pandemic.<sup>11</sup> We revisit these recommendations with the knowledge of the current experiences in mind, to suggest reforms or areas of focus that could assist the tertiary sector in its recovery:

#### *Strategic directions for national sectors and institutions*

1. *Financing tertiary education.* A decline in student enrolments, less international students, limited research publications, inability of students to pay tuition fees, and restrictions on government funding for institutions are some of the main reasons affecting institutions' financial health. In the shorter term, the immediate

<sup>11</sup> <https://documents1.worldbank.org/curated/en/506241590701178057/COVID-19-Impact-on-Tertiary-Education-in-East-Asia-and-Pacific.pdf>

recommendation might be to diversify funding streams, including working with private sector partners, foundations, multilaterals, and international organizations, while longer term recovery of sectors might require the replacement of outdated tertiary business models with a renewed strategic direction, as it may take years for the global economy and tertiary education to recover from the pandemic (Davis, 2021).

2. *Develop infrastructure.* Tertiary education systems could emerge stronger if they take this opportunity to develop digital infrastructure focused on more agile and flexible systems. This could take place through the strategic allocation of institutional funding to expand and update technological infrastructure for digital pedagogy, investing in learning science, and training of faculty members. Institutions, staff, and students who are equipped with good infrastructure, resources, and skills, and who were already engaged in a culture of using technology for teaching and learning, had a much easier transition to remote learning. Investing in collaborations known as National Research and Education Networks (NRENs) with infrastructure providers could also have widespread benefits.
3. *Increase collaboration.* Investing in public-private partnerships could tackle many challenges related to accessing innovative technologies, infrastructure, and digital skills training.<sup>12</sup> Many organizations, including the World Bank and UNESCO, have shared a range of resources for countries to use.<sup>13</sup> Building collaborative relationships with open universities could also guide policy and practice related to quality. Collaborations might also extend to include communities in institutional planning. If institutions are increasingly vulnerable to losing students because of students' household economic responsibilities, initiatives that support part-time or flexible learning opportunities that meet the needs of the community could be implemented to increase participation in education.
4. *Position universities as critical contributors to national and international priorities.* Beyond the need for specialist research, resources, and knowledge to combat COVID-19, the EAP region is often plagued by environmental challenges. The tertiary sector in general has the capability and responsibility to take the lead in tackling the climate crisis. The significant decline in carbon emissions during national lockdowns, coupled with the slow progress of tertiary institutions to reform campuses into eco-friendly spaces also create increased pressure on tertiary institutions to take the lead in climate change issues. The possible restrictions on funding for the tertiary sector might contribute to better, or more innovative planning to use resources, discard or recycle waste on campuses, or strategically repurposing funding to support national and international priorities. A focus on developing cutting-edge methods to combat climate change and the impact it is having on the world, along with setting an example for others by becoming more environmentally conscious in their day to day operations by integrating a focus on climate change into the production of knowledge, technology transfer, embedded in pedagogy, and actively promoting sustainable development as part of their institutional missions, are important factors to incorporate in institutional focus areas.

#### *For policy and accountability*

5. *Coordinate national efforts to develop infrastructure, digital skills training, and other technical capacities.* It is important to learn from the COVID-19 experiences. The value of EdTech relies on the ability of its users to access it and the capability to use it optimally to facilitate learning. As with the case of Korea, the ability to access technology does not ensure a quality and satisfactory educational experience. However, it is a foundational requirement that everyone should have appropriate access to reliable internet and devices, as well as the capability to optimally use different forms of technology.

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<sup>12</sup> <https://www.weforum.org/agenda/2020/03/3-ways-coronavirus-is-reshaping-education-and-what-changes-might-be-here-to-stay/>.

<sup>13</sup>For example, <https://en.unesco.org/covid19/educationresponse/solutions> and <https://www.worldbank.org/en/topic/edutech/brief/edtech-covid-19>.

6. *Develop and implement policies and guidelines to inform the quality of blended/flexible learning.* The emergency response to the pandemic did not allow institutions, teachers or students to appropriately prepare and implement online pedagogies guided by quality. As a result, concerns about the quality of education during this time could result in negative perceptions of online or blended teaching and learning in general. A policy landscape, including implementation strategies that guide the quality of online and blended teaching and learning could support a more structured way of engaging with EdTech and facilitating quality learning.
7. *Draft policies on the ethics and security of technology.* Policies guiding the extent of democracy, privacy, and the rights of citizens need to guide ethical use of technologies, even during times of crisis. In addition, stronger emphasis on cybersecurity as an infrastructural must-have, as well as part of digital skills development and awareness for all students and staff is needed to protect institutions and individuals from potential harm.
8. *Implement data management and quality measures.* More data require better ways of managing data and increased capacity within institutions to manage institutional databases.
9. *Tackle the digital divide in policies.* Arguably the widest referenced challenge experienced in implementing remote learning in EAP and other regions is the digital divide. Students from poorer families, living in rural areas, or who are marginalized in other ways, are often excluded from innovations. This should be kept in mind when introducing new measures to advance flexible learning pathways. Other initiatives that could be considered to enhance equity include assessing the terms, conditions, and scale of student loans and grant programs, and greater provisioning of no-cost educational resources for institutions serving disadvantaged populations or providing dedicated additional support programs for vulnerable students.

#### ***For teaching and learning***

10. *Flexible learning pathways.* Blended learning solutions have already become the new normal. Mainstreaming online and blended learning could be an important method to widen equitable access to tertiary education. However, the success of such mainstreaming efforts will depend on supportive national and institutional policies, ensuring appropriate infrastructure and access to devices, institutional capacity-building and professional development, and increasing collaborations in developing best practices. From students' current experiences in the EAP it is also clear that the relational aspect of teaching and learning is important to their overall educational experience, thus, introducing more aspects of flexible learning into regular face-to-face courses would be preferred over fully online engagements. An innovative example of balancing face-to-face and online classes is from Singapore, where researchers are targeting selected large-scale classes for online formats. Manipulating population sizes in this way could reduce chances of recurring COVID-19 transmissions, and contribute to the tertiary education sector's commitment to lessening carbon emissions (Yeo, Lai, Tan & Gooley, 2021). Flexible pathways would also include introducing a variety of courses to complement national skills needs.
11. *Invest in low-tech innovations.* Parallel with investments in high-tech approaches to advance flexible learning, universities should also consider developing low-tech innovations. With an expected decline in government funding, compounded by potential losses of income through a decline in student fees, it is important for universities to think innovatively about implementing low-tech options, sharing technologies and resources, or even optimizing the use of existing learning management systems.
12. *Create new opportunities for national and international students* by expanding online options for potential international students and introducing virtual exchange alliances and virtual internships. Universities across the globe will have to consider how they can access the market for shorter courses, micro-credentials, or digital certifications.<sup>14</sup> An innovative example of expanding students' virtual mobility is the Virtual Student

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<sup>14</sup> <https://www.universityworldnews.com/post.php?story=20200403133447141>.

Mobility (VSM) project,<sup>15</sup> developed by UNESCO's International Institute for Higher Education in Latin America and the Caribbean (UNESCO-IESALC). The VSM is a platform that facilitates cross-border and/or inter-institutional academic, cultural and experiential exchanges and collaboration, including credit and non-credit-bearing exchanges.

13. *Ensure that university teachers and students are appropriately trained in educational technology.* Aligned with the policy efforts noted under point 6 earlier, the success of implementing EdTech will depend largely on whether teachers and students are using it optimally. For teachers, this will include training beyond technical capabilities to include the integration of pedagogy and technology.

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<sup>15</sup> <https://www.iesalc.unesco.org/en/vsm/>

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