ADB BRIEFS

KEY POINTS

- Sri Lanka made a remarkable transition to online tertiary education after closing its higher education institutions in response to the coronavirus disease (COVID-19) pandemic. According to the universities surveyed, nearly 90% of student respondents have been able to access online education. This rate is comparable to developed countries like Japan.

- All internet service providers in Sri Lanka provided free internet access to university servers during COVID-19 until 17 August 2020. This has been instrumental in promoting online learning for students.

- Given sampling limitations, this survey might overrepresent students with online access. The adoption of online learning varied by discipline, university, and household income. Survey results showed poor internet connections disrupted online education, and some students had to access other websites to prepare for lectures and complete assignments.

- Providing laptops and uninterrupted, affordable, high-speed internet access, particularly for students in poor households or remote areas, is crucial to ensuring equal access to tertiary education.

- Higher education institutions need to revisit curriculums, pedagogy, and assessments for online education and blended learning. Loan schemes to purchase laptops could be considered.

- Practical laboratory training for certain disciplines, student engagement, and credible online examination will remain challenging. With university reopening in July 2020, strategies need to be developed for implementing blended learning.

- Changing the mindsets and attitudes of faculty and students is critical. A few hours of training for both to learn tactics for blended learning is necessary, but may not be sufficient. Strong leadership and incentives are also needed.

Online Learning in Sri Lanka's Higher Education Institutions during the COVID-19 Pandemic[1]

Ryotaro Hayashi
Social Sector Economist
Human and Social Development
    Division, South Asia Department
Asian Development Bank (ADB)

Angelica Maddawin
ADB Consultant

Marito Garcia
Fellow, Darden Business School
Center for Global Initiatives
University of Virginia

K. P. Hewagamage
Professor in Computer Science
University of Colombo

INTRODUCTION

The temporary closure of educational institutions during the coronavirus disease (COVID-19) pandemic has abruptly transformed the global education landscape in favor of distance learning.[2] This radical shift saw a surge in the use of various digital platforms and applications, including digital learning management systems, collaboration platforms for live-video communication, massive open online courses (MOOCs), and tools for creating learning content.[3] Some platforms have offered free access to basic services, especially during the pandemic, which higher education institutions used extensively, especially among academic staff and students with digital experience. For example, 90.3% of universities in Japan were providing distance learning as of 1 June 2020.[4] In upper-middle-income countries, 88% of youth managed to continue learning, including 54% by video lectures and 40% by online testing.[5]

ADB

In Sri Lanka, access to higher education is already very limited.[6] The government ordered all educational institutions closed from 12 March 2020, including higher education institutions—15 state universities and about 40 other state and nonstate tertiary education institutions. Such disruptions in tertiary education by COVID-19 could delay the creation of the leaders and skilled workforce the country needs to successfully transition to upper-middle-income status.

To mitigate the effects of disrupted learning, higher education institutions utilized existing Moodle-based learning management systems under university web servers.[7] The Lanka Education and Research Network (LEARN) was connected to university web servers and used for online education. The network could monitor the utilization of Zoom daily. In addition, all internet service providers in Sri Lanka provided free access to university web servers during the pandemic until 17 August 2020 (see Box 1).

Box 1: Free Access to University Web Servers in Sri Lanka During COVID-19—Policy Process, Benefits, and Challenges

All internet service providers in Sri Lanka provided free internet access to university servers during the coronavirus disease (COVID-19) pandemic until 17 August 2020. This has been instrumental in promoting online learning for students in Sri Lanka. However, not all countries can start or follow this model. Why was Sri Lanka successful in taking this initiative?

The highest political leadership made a difference. Soon after the pandemic was declared in March by the World Health Organization, the Chairman of University Grants Commission (UGC) approached Sri Lankan President Gotabaya Rajapaksa to provide free internet access for university web servers, because this is the most practical solution to continue the education of collegiate-level students, taking into account the time, scale, and cost. President Rajapaksa immediately discussed with the Telecommunications Regulatory Commission of Sri Lanka (TRCSL) to take actions. As a result, UGC and TRCSL reached an agreement with all internet service providers in Sri Lanka to provide free access for university learning management systems and remote learning facilities through the Lanka Education and Research Network (LEARN).

This critical intersectoral collaboration was made possible because of the intervention of the highest political leader, but was not an overnight success. LEARN had been in development over 30 years. LEARN is an association registered under the Companies Act of Sri Lanka, and works as a specialized internet service provider for education and research purposes. It provides a high-speed backbone network connecting the Ministry of Education, UGC, and state higher education and research institutions. LEARN functioning as an internet service provider facilitated whitelisting university web servers for access to online tertiary education during COVID-19.

Both students and faculty members immensely benefited through this solution. According to the LEARN report, as of 23 August 2020, 13 million activities (e.g., accessing reading materials, following lecture slides, attending online quizzes) using learning management systems were launched in a peak week during May. For synchronous teaching and learning using LEARN's video conferencing solution, nearly 540,000 participants in total were recorded per week in July. As LEARN had developed its own network over time, this also saved international data bandwidth.

However, students and faculty members did have some issues along the way. While access and download of all learning materials from the university web servers were free, some faculty members put website links beyond university web servers, such as YouTube and digital news article websites, to facilitate distance learning. Access to these websites, however, is charged, which raised concerns and confusion among students and faculty members.

With the announcement of gradual university reopening, the LEARN access measure is only valid until 17 August 2020. However, some internet service providers will continue free access until the end of the billing period close to that date. Full university reopening will take some time. Thus, providing affordable, reliable, and high-speed internet access remains as a challenge.

Sources: Asian Development Bank; and Lanka Education and Research Network. 2020. Online Teaching and Learning Activities of State Universities Under the UGC. Colombo.

---

[6] According to UNESCO Institute of Statistics, the gross enrollment ratio for tertiary education was 19.6% in 2018 (female: 23.4%, male: 15.8%), but access to higher education was low if the external degree programs provided by Sri Lanka Open University were excluded (UNESCO Institute of Statistics. Sri Lanka. http://uis.unesco.org/en/country/lk [accessed 6 August 2020]). Sri Lankan tertiary education is driven by the state and tuition is free for bachelor's degree programs at state higher education institutions, which constrains the expansion of access.

[7] Moodle is a free open source platform.

Universities resumed learning from 6 July 2020, contingent on adherence to health guidelines, and done on a limited scale, with priority given to final-year students. Following a gradual approach, incoming first-year students have yet to start their tertiary education. The resumption also depends on the vice chancellor's decision reflecting the context of each university.

As such, online education would remain an important means for delivering tertiary education. Indeed, improving access to quality tertiary education is among the Government of Sri Lanka's highest priorities in its efforts to realize a knowledge-based economy under Vistas of Prosperity and Splendour, its new economic framework.[8]

Against this backdrop, it is important to understand emerging issues and challenges in the radical shift toward online education. This brief presents the status as of June 2020 of online learning in Sri Lanka's higher education sector since the university closures. Some universities conducted their own evaluation for improving online education, and provided recommendations on internet access and training for faculty.[9] This brief goes a step further, however, by analyzing results of online surveys conducted for all state and nonstate universities and institutes under the Ministry of Education and the University Grants Commission. At the initiative of the Presidential Task Force, the Asian Development Bank surveyed university administrations, faculty members, and students online in close consultation with the ministry and the commission.

DESCRIPTION OF DATA

Three online surveys were conducted on 17–29 June 2020 covering both state (46) and nonstate (10) higher education institutions. The first survey covering university administrations yielded 353 responses from 44 institutions, including responses from vice chancellors, deans, department heads, registrars, and other administrative staff. The survey assessed technology usage in online learning, infrastructure, capacity development, and institutional support for online education during the COVID-19 pandemic.

The second survey, conducted for faculty members, generated 2,104 responses. After data cleaning, 2,099 responses from 50 higher education institutions were used for analysis (2,003 from state higher education institutions and 96 from nonstate higher education institutions).[10] There were 6,003 teaching staff from the institutions,[11] for a response rate of about 35%. More than 50% of respondents were senior lecturers for state higher education institutions. The faculty questionnaire was designed to understand the status of online teaching, access to internet and technological devices, capacity and know-how, and online course development and online learning resources during COVID-19.

The third and final online survey targeted students. A total of 20,517 students participated. Data analysis was conducted garnering 20,434 responses (19,159 from state higher education institutions; 1,260 from nonstate institutions; 15 from Sri Lanka but missing information about higher education institution name or type) from 55 higher education institutions. The response rate was around 15%, based on an undergraduate enrollment of 97,928 students and postgraduate enrollment of 39,962 in 2018.[12] The online survey covered topics similar to the faculty survey, such as status of online learning during COVID-19, access to internet and hardware devices, and quality of online education and concerns about COVID-19.

The number of responses was fairly large, considering that these were online surveys. However, representativeness is one limitation of the data. It is possible that certain groups of university administrators, faculty, and students with strong views about distance learning or who are more comfortable with information and communication technologies, participated more than others. An upward bias is likely, especially in the results for student access rates during the pandemic. In 2017, 34% of individuals in Sri Lanka used the internet.[13] This online survey was more likely to attract respondents with access to the internet. However, the Ministry of Education and the University Grants Commission repeatedly followed up all higher education institutions to seek their cooperation in the surveys. We believe that the survey results still provide valuable information to improve online tertiary education in Sri Lanka for use in the "new normal" conditions that may prevail after COVID-19.

---

[8]   Ministry of Finance. 2020. *National Policy Framework Vistas of Prosperity and Splendour.* Colombo.
[9]   Dharmaratna, W.G.D., T. M. Rengarasu, and P. A. Jayantha. 2020. *Students' Connectivity to Online Classes and Their Perception of Internet Connection at Their Residences: A Study Based on A Questionnaire Survey Conducted among Students of the University of Ruhuna.* Matara.
[10] Excluded from the analysis are responses from overseas universities; technical and vocational education training institutions (e.g., university colleges); and missing key information (e.g., university name, location).
[11] University Grants Commission. 2019. *Sri Lanka University Statistics 2018.* Colombo.
[12] The response rate is 4% if 356,220 student enrollment (external, open, and distance learning) are taken into account. (Response from the Sri Lanka Open University was 4% for faculty and 3% for students.)
[13] World Bank. Data. https://data.worldbank.org/indicator/IT.NET.USER.ZS?locations=LK (accessed 12 August 2020).

FINDINGS FROM THE SURVEYS

Participation in Online Education

During the COVID-19 pandemic, more than 90% of higher education institutions (state and nonstate) carried out remote learning (mostly online) (Table 1). This contrasts sharply with fairly limited remote learning in pre-pandemic times. Around half of faculty in higher education institutions were not accustomed to online education. In particular, 12% of faculty in state higher education institutions and 27% of faculty in nonstate higher education institutions responded that they had not used online education at all.

In June, almost all faculty for both state and nonstate higher education institutions adopted online education. This reflected necessity as well as high motivation and determination among faculty to continue tertiary education with the support of guidelines and video conferencing licenses provided by the higher education institutions. Faculty reported using PowerPoint presentations, and about 40% responded that they used online quizzes and an online whiteboard. Online teaching was much higher than offline teaching (21%), which is led by distribution of

Table 1: Sri Lanka—Remote Learning in Higher Education Institutions

	State Higher Education Institutions		Nonstate Higher Education Institutions	
	Yes (%)	Responses (no.)	Yes (%)	Responses (no.)
Universities that deliver remote learning (Administrative staff respondents)	94	318	93	29
Actions taken to support remote learning during COVID-19				
Used tools to support live video web-conferencing	93	294	100	27
Used learning management system as platform for online course management	82	294	81	27
Issued mandate to initiate and/or promote online teaching and learning	66	294	81	27
Training of faculty on pedagogy for online teaching	47	294	70	27
Supported faculty access to internet	36	294	67	27
Facilitated access to digital materials	29	294	30	27
Universities that deliver remote learning (Faculty respondents)	97	1,995	98	95
Delivery method				
Online learning mostly (internet-based)	79	1,932	73	93
Offline learning mostly (television, radio, compact disc, or DVD learning materials)	1	1,932	0	93
Both online learning and offline learning	20	1,932	27	93
Type of technological tools used				
Online quiz	41	1,922	61	92
Whiteboard	39	1,922	58	92
Use of online learning				
Significantly used	14	1,987	18	94
Moderately used	35	1,987	30	94
Slightly used	38	1,987	27	94
Not at all	12	1,987	27	94
Students who attended remote learning (overall)	88	19,008	88	1,249
Family monthly income < SLRs29,000	86	7,972	83	330
Family monthly income SLRs29,000–SLRs45,000	88	5,067	86	337
Family monthly income SLRs45,000–SLRs70,000	89	2,947	88	244
Family monthly income SLRs70,000–SLRs100,000	91	1,451	93	167

Table 1 *continued*

	State Higher Education Institutions		Nonstate Higher Education Institutions	
	Yes (%)	Responses (no.)	Yes (%)	Responses (no.)
Family monthly income > SLRs100,000	93	1,000	97	136
Male	89	6,150	87	477
Female	87	12,502	89	749
Urban	90	7,968	90	698
Rural	87	9,075	85	432
Estate	85	1,168	86	73
Frequency				
Everyday	55	16,579	56	1,084
About 2–3 days a week	35	16,579	33	1,084
About 1 day a week	9	16,579	10	1,084
Never	1	16,579	0	1,084
Satisfaction with overall remote learning				
Very satisfied	24	16,521	27	1,088
Moderately satisfied	66	16,521	59	1,088
Dissatisfied	9	16,521	10	1,088
Very dissatisfied	2	16,521	3	1,088

COVID-19 = coronavirus disease, SLRs = Sri Lanka rupees.
Source: Asian Development Bank.

printed study guides, materials, and workbooks. In nonstate higher education institutions, more faculty tend to receive institutional support in online learning in terms of internet access and pedagogical training in online teaching.

Students also actively joined online education, achieving an 88% participation rate for both state and nonstate institutions. More than half of responding students taking online education joined every day, although around 10% responded that they attended online learning only once a week. Nearly 90% of students were highly or moderately satisfied with online education. Interestingly, differences were not large in online learning adoption by gender, and between state and nonstate institutions. The dataset also shows no large difference between urban and rural residents, but differences must nonetheless exist given the gap in internet access between them.[14] However, a striking difference in access to online learning by income group may be noted within the nonstate higher education institutions, where the gap is widest between students in the lowest income quintile (83%) and the highest income quintile (97%).

In addition to household income level, data varied by discipline and university. While students in the arts (other than performing arts) could continue tertiary education through online studies without much hands-on practical training, their online attendance was the lowest at 74%, followed by education (81%), and law (83%) (Table 2). The gap between the subject with the highest online usage (dental science) and the lowest (arts and performing arts) was more than 20 percentage points. Relatively low online learning in the arts was associated with lower household income. The gap between the lowest (less than SLRs29,000 per month [$160]) and highest household income group (SLRs100,000 per month [about $540]) was 8 percentage points for access to online education. Intriguingly, students at the Open University of Sri Lanka (69%) struggled in distance learning, while this university took an open and distance learning approach for teaching to support the largest number of students through the network of regional and study centers located in every district. Student online education participation in some universities, such as the University of Visual and Performing Arts (70%), University of Kelaniya (75%), and Eastern University (77%) were relatively low compared with other higher education institutions.

---

[14] According to LIRNEasia, the gap in internet access between urban and rural areas was 23% in 2018–2019. (LIRNEasia. 2019. AfterAccess: ICT access and use in Sri Lanka and the Global South. https://lirneasia.net/2019/05/afteraccess-ict-access-and-use-in-sri-lanka-and-the-global-south-presentation/.)

Table 2: Sri Lanka—Remote Learning by Discipline and Preference in Higher Education Institutions

Disciplines	Attended Remote Learning (%)	Responses (no.)	Classes Online and Laboratory on Premises (%)	50% Classes Online, 50% Laboratory on Premises (%)	Classes on Face-to-Face and Laboratory on Premises (%)	Responses (no.)
Dental science	96	125	17	22	61	118
Medicine	95	2,211	27	28	45	2,054
Allied health science	95	283	26	23	51	262
Science	94	2,902	19	31	50	2,641
Architecture	93	83	28	38	34	74
Veterinary medicine	93	83	26	30	43	76
Indigenous medicine	92	519	23	29	48	465
Computer science and/or information technology	90	1,097	24	41	35	956
Technology	89	777	18	37	46	671
Management science	89	1,251	21	42	37	1,069
Agriculture	87	1,444	30	27	43	1,221
Engineering	84	1,757	25	29	46	1,421
Law	83	58	18	61	20	44
Education	81	329	22	43	35	256
Arts and performing arts	74	1,210	15	47	38	852

Source: Asian Development Bank.

Online education enabled continuous learning without spreading COVID-19, saved time and physical space in delivering course content, facilitated information sharing and on-demand learning, and provided flexibility in teaching delivery. Yet, the interaction between faculty and students was challenging. Higher education institutions do more than provide knowledge and technology in classrooms; they also serve as a space "to develop social interactions, teamwork, personality management and development, know about others, taking part in extracurricular activities", as one faculty observed. While overall, students preferred complete face-to-face classes and practical training (where available), students from the nonhealth sciences—such as architecture, computer science and/or information technology, management science, law, education and arts—preferred 50% of classes online, rather than 100% face-to-face classes and laboratory training. Online learning could also allow students to hold part-time jobs, for income and experience that could contribute full-time work after graduation.

Internet Access

Mobile data was critical, and all internet service providers in Sri Lanka provided free access to university web servers during COVID-19 until 17 August 2020, boosting online education. But most students still had concerns over affordability and stability of internet access. Mobile broadband was used by 78% of students in state, and 69% in nonstate institutions (Table 3). About half of faculty respondents reported using mobile data (57% in state, and 49% in nonstate institutions). Almost half of surveyed students responded that mobile data plans were not affordable, or somewhat affordable. Poor internet connection was the top challenge faculty and students faced during online learning. More than 70% of students, 68% of faculty in state institutions, and 76% of faculty in nonstate institutions faced connection issues during online teaching and learning. One faculty member remarked that "students walk several hundred meters to get [a] somewhat decent signal". Respondents reported disruptions in internet access caused by power outages in some areas. Without a stable, high-speed internet connection, student engagement and performance assessments were even more challenging, particularly for faculty.

Table 3: Sri Lanka—Internet Access for Faculty and Students in Higher Education Institutions

	State Higher Education Institutions		Nonstate Higher Education Institutions	
	Yes (%)	Responses (no.)	Yes (%)	Responses (no.)
Faculty internet connection at home				
Mobile broadband (mobile data package)	57	1,994	49	95
Landline connection	43	1,994	51	95
Student internet connection at home				
Mobile broadband	78	18,949	69	1,252
Landline connection	20	18,949	28	1,252
No access to internet	2	18,949	2	1,252
Affordability of mobile data plan				
Very affordable	7	18,777	9	1,243
Moderately affordable	44	18,777	40	1,243
Somewhat affordable	36	18,777	35	1,243
Not affordable	13	18,777	16	1,243
Quality of mobile network				
Excellent and stable	6	18,944	8	1,249
Good and stable	57	18,944	56	1,249
Poor	36	18,944	35	1,249
No network coverage	1	18,944	1	1,249
Challenges encountered by students in remote learning				
Poor internet connection	71	15,957	74	1,067
Looking at phone or personal computer video screen is boring and stressful	50	15,957	49	1,067
Difficulty in online assessments and/or exams	34	15,957	34	1,067
Maintaining faculty–student interaction	25	15,957	28	1,067
Poor quality of video collaboration software	18	15,957	18	1,067
No access to device	10	15,957	10	1,067
No internet connection	7	15,957	10	1,067
Challenges encountered by faculties in remote learning				
Poor internet connection	68	1,899	76	93
Difficulty in assessing student performance	76	1,899	68	93
Poor engagement with students	64	1,899	70	93
No training in the use of technology	17	1,899	11	93
No access to technological device	15	1,899	13	93
Inadequate and/or no skills in remote teaching	13	1,899	11	93
No internet connection	8	1,899	9	93

Source: Asian Development Bank.

Some students asked for a free or subsidized data package because they had to access websites other than university web servers to prepare for lectures and to complete assignments. Highly motivated students even tried to take extra online courses from world-class universities through massive open online courses. Some students realized that online education would be an opportunity to advance their education and professional development by taking other professional courses offered online. Yet, these required large amounts of data and were expensive for students. Support for internet connectivity at home was also the most attractive incentive for faculty to encourage the use of technology for tertiary education.

Access to Hardware and Digital Platforms

Access to computer hardware did not seem to be an obstacle for faculty. More than 90% in state and nonstate higher education institutions reported owning a laptop. While more than 50% of faculty received laptops from higher education institutions, 31% of state and 38% nonstate faculty reported that no devices were provided (Table 4). It is likely that many faculty used their own personal computers to be able to continue teaching. In addition to laptops, faculty in science, technology, engineering, and math also requested smartpens and smartboards for equations and calculations.

Table 4: Sri Lanka—Technological Devices and Digital Platform in Higher Education Institutions

	State Higher Education Institutions		Nonstate Higher Education Institutions	
	Yes (%)	Responses (no.)	Yes (%)	Responses (no.)
Devices owned by faculty				
Laptop	92	1,994	94	95
Smartphone	89	1,994	84	95
Tablet	21	1,994	16	95
Desktop computer	17	1,994	14	95
Devices provided to faculty				
Laptop	51	1,896	56	89
None of the above	31	1,896	38	89
Desktop computer	26	1,896	10	89
Tablet	4	1,896	0	89
Devices owned by students				
Smartphone	91	18,995	88	1,250
Laptop	55	18,995	66	1,250
Desktop computer	7	18,995	12	1,250
Tablet	7	18,995	6	1,250
Loans from university for devices	41	18,401	14	1,226
Teaching tools used by faculty				
Learning management systems	91	1,927	85	91
Web conferencing	85	1,927	88	91
Collaboration tools	36	1,927	55	91
Course authoring software	2	1,927	1	91
Virtual reality and augmented reality	1	1,927	2	91

Source: Asian Development Bank.

By and large, students owned smartphones, but access to laptops and desktops with a video camera was inadequate. Although around 90% of students reported owning a smartphone, just 55% of students in state and 66% in nonstate higher education institutions said they owned a laptop. Only 7% of students in state and 12% in nonstate institutions reported that they had a desktop computer. For many students, smartphones were not conducive for reading all the materials and completing written assignments and quizzes using a learning management system.

Some faculty voiced concern that prolonged usage of smartphones could harm students' physical and mental health. The faculty members and students are also concerned about the negative impact of COVID-19 beyond online education (see Box 2). Yet, support from higher education institutions was limited. For example, from nonstate institutions, only 14% of students reported that the institutions provided a loan or subsidy to help them acquire hardware devices. Students in nonstate institutions were more likely to own hardware devices than students in state institutions.

The share of students in state institutions who could receive support in acquiring a hardware device was 41%.

Faculty utilized learning management systems and web conferencing aggressively. The former was used for course management (e.g., lesson plans, uploading teaching materials), and online teaching; and more than 85% of faculty in state and nonstate universities used free digital platforms such as Google Classroom and Zoom. Almost all higher education institutions used Moodle-based learning management systems hosted in university web servers connected to the Lanka Education and Research Network. Reported use of platforms requiring additional costs to faculty was lower. Use of collaboration tools (e.g., Google Drive, Dropbox, Microsoft 365 SharePoint) was less frequent, and faculty seldom used course authoring software such as Articulate 360 and Adobe Captivate, as well as virtual reality and augmented reality. Rather than exploring expensive platforms, some faculty tried low-cost solutions with smartphones, such as audio recorded PowerPoint presentations to minimize data consumption.

Box 2: Concerns of Students and Faculty Members Due to COVID-19

The online surveys asked about the negative impact of the coronavirus disease (COVID-19), and 74% of students and 60% of faculty members expressed worry or extreme worry about it. In this brief, it is clear that there are challenges on students' engagement in learning, and on access and costs for internet and mobile package related to online tertiary education. However, there are other issues beyond these. What are some of these specific concerns arising from COVID-19?

The students worry about reduced income (40%), which is more than twice that of getting sick (15%). Given the significant reduction in job openings during COVID-19, as found out by an ADB study, 69% of students are worried or extremely worried about employment prospects. Not surprisingly, the employment concerns are more serious for third and final year students in higher education institutions. Furthermore, social cohesion (20%) is another concern for students, which is higher than getting sick.

Some students also voice concerns over boarding fees while they are physically away from higher education institutions.

The faculty members are concerned about social cohesion (39%), slightly more than getting sick (38%). The reduced income is only 7% for faculty members at state higher education institutions, but this figure increases to 26% for faculty at nonstate higher education institutions.

These issues shed light on measures beyond online tertiary education. The social distance and discrimination from COVID-19 are posing challenges on social cohesion for the mind of faculty members and students, which may need to be taken care by deliberate counselling with compassion. The career guidance and job placement support at higher education institutions will be increasingly important to mitigate concerns of the students for employment.

Sources: Survey data; ADB. 2020. *COVID-19 Impacts on Job Postings: Real-Time Assessment Using Bangladesh and Sri Lanka Online Job Portals.* Manila.

Table 5: Sri Lanka—Training Needs in Higher Education Institutions

	State Higher Education Institutions		Nonstate Higher Education Institutions	
	Yes (%)	Responses (no.)	Yes (%)	Responses (no.)
Preparedness for remote teaching				
Very well prepared	38	1,930	55	93
Moderately prepared	44	1,930	37	93
Slightly prepared	10	1,930	2	93
Not prepared	8	1,930	6	93
Faculty training in online teaching				
Blended learning techniques and models	43	1,921	45	93
Pedagogies for online teaching	36	1,921	35	93
Multimedia content creation (video lectures, animation, interactive simulations)	31	1,921	47	93
Curriculum and/or instructional design and online course creation	27	1,921	32	93
Online assessment creation	24	1,921	40	93
None of the above	25	1,921	19	93
Capacity building activities faculties are interested in				
Training in the use of technology tools (web conferencing, digital collaboration tools, online assessment)	67	1,944	60	95
Training in blended learning techniques	62	1,944	58	95
Creating online courses and video lectures, or producing MOOCs	58	1,944	57	95
Training in pedagogies for online teaching	49	1,944	49	95
Using international courses (MOOCs) for my class curriculum	33	1,944	34	95
Enrolling in international MOOCs for my own professional development	31	1,944	43	95
Joining a community of practice for online learning	27	1,944	29	95
Student's perception on lecturer's knowledge in online teaching				
Very good	28	18,821	31	1,247
Good	55	18,821	50	1,247
Fair	13	18,821	15	1,247
Poor	3	18,821	3	1,247
Very poor	1	18,821	1	1,247
Digital content provided by teacher				
Freely available digital Open Educational Resources from internet	39	17,559	43	1,183
None of the above (teaching through printed books and materials)	37	17,559	34	1,183
Open-source (free) digital resources library (LEARN Digital Library, etc.)	25	17,559	24	1,183
Proprietary and licensed course content (e.g., Khan Academy, Coursera, edX, Udemy, Udacity, etc.)	17	17,559	17	1,183
Open courseware (free) (e.g., MIT Open Courseware, etc.)	6	17,559	9	1,183

LEARN = Lanka Education and Research Network, MIT = Massachusetts Institute of Technology, MOOCs = massive open online courses.
Source: Asian Development Bank.

Training Needs Assessment

Despite the rapid shift to online tertiary education, around one in four faculty did not receive any training related to online teaching. Faculty from nonstate institutions seemed better prepared than state faculty: some 55% of the nonstate faculty self-evaluated "very well prepared" compared to 38% in the state institutions (Table 5). But overall, less than half of faculty received training in blended learning skills. Even less training was provided for other areas, with online assessment training in state higher education institutions provided least (24%). Although some students would like to complete assessment as per normal university schedule for graduation, conducting credible online assessment is challenging, which requires carefully designed policy and institutional support beyond training. While students' perceptions of lecturers' expertise in online teaching was more than 80% "good" or "very good", this might not represent a fair view of the faculty capacity for online education considering the disrupted internet access by students.

The survey revealed that faculty members need just a few hours of training to catch up on technology. Training needs for faculty were particularly high for use of technology tools such as web conferencing, digital collaboration tools, and online assessment (67%). This was followed by blended learning techniques (62%); creating online courses and video lectures, or producing MOOCs (58%); and training in pedagogies for online teaching (49%) as shown in Table 5. The use of digital content such as open educational resources and Lanka Education and Research Network could be further improved. Most of the faculty members needed less than 3–4 hours of training for online education. After receiving training, technical IT support and help-desk services can address technical problems. Some faculty pointed out a need for training students in online learning so they could get the most from it. However, training is a necessary, but not sufficient condition for making changes in blended learning pedagogy. Strong university administration leadership and incentives will also help change faculty mindsets.

CONCLUSIONS

Sri Lanka made a remarkable, quick shift to online tertiary education after all educational institutions were forced to close in March 2020 due to the COVID-19 pandemic. According to online surveys of university administration, faculty, and students in June 2020, nearly all faculty tried online education, and close to 90% of students participated in online education despite a lack of experience and training. This level of access to online education is comparable to developed countries like Japan, and impressive digital transformation took place with little difference by gender, and by state or nonstate higher education institution. However, data varied by discipline, university, and household income. While the dataset does not show a large difference between urban and rural areas, access to online education is likely to differ considering

uneven internet access. With the gradual university reopening in July 2020, the initial lessons learned will facilitate another transition from online education to blended learning.

The lack of consistently stable, high-speed internet access was the most significant challenge for students and faculty in continuing tertiary education during the early onset of COVID-19. Some students had to access online education through smartphones, using mobile data packages that many could scarcely afford. Students from low-income households suffered disproportionately, and gaps grew in access to tertiary education. The situation in Sri Lanka was, however, much better since all internet service providers enabled free access to university web servers until 17 August 2020. Nonetheless, online education accessed through smartphones limits access to reading materials, writing assignments, and solving quizzes through learning management systems. Providing laptops to all students would create a more conducive environment for online education. Many faculty and students suggested the introduction of loan schemes to purchase laptops with a video camera.

In addition to challenges in internet connectivity, tertiary education in Sri Lanka needs to revisit curriculums, pedagogy, and assessment for blended learning. During COVID-19, faculty did their best to provide online education using offline curriculums, but this model was not sustainable. For example, practical laboratory training is challenging to complete and student engagements are limited through online education.

The development and distribution of a vaccine for COVID-19 will likely take time, so blended learning should be integrated into the regular curriculum to manage tertiary education during and beyond COVID-19. A few hours of training for faculty and students will be helpful for quick technical fixes but may not be enough to execute a seamless transition to a blended learning pedagogy. Faculty mindset and motivation need to change through strong leadership from university administration and provision of the right incentives. Online assessment could start from quizzes, but online assessment of high-stakes exams must be approached carefully and with the protection of user credentials. This may require use of new technologies, such as blockchain.

Responding to COVID-19 provided opportunities for Sri Lanka's tertiary education system to become more resilient against unforeseen future challenges. One faculty member responded that, "this could be a magical solution for higher education problems in Sri Lanka". Still, many faculty view online education as an enabler of face-to-face learning, rather than as something to completely replace face-to-face teaching. As mentioned earlier, nearly all faculty had their first-ever experience in delivering online education during COVID-19. This external shock could be a catalyst for creating more open mindsets and attitudes toward blended learning if Sri Lanka continues to build on the lessons learned in this crisis.

About the Asian Development Bank

ADB is committed to achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty. Established in 1966, it is owned by 68 members— 49 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

ADB Briefs are based on papers or notes prepared by ADB staff and their resource persons. The series is designed to provide concise, nontechnical accounts of policy issues of topical interest, with a view to facilitating informed debate. The Department of Communications administers the series.

Note:
In this publication, "$" refers to United States dollars and SLRs to Sri Lanka rupees.