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DISRUPTION AND OPPORTUNITIES DURING THE COVID-19 PANDEMIC IN CAMBODIAN HIGHER EDUCATION: PERSPECTIVE FROM TEACHING STAFF

Introduction

Unprecedented challenges denoted by the Covid-19 pandemic have caused the largest and the fastest disruption to all sectors around the world. Among the sectors hit hardest is education. By early April 2020, in an attempt to contain the virus, schools and universities in 175 countries were closed, adversely affecting the studies of an estimated 220 million postsecondary students (World Bank 2020). These closures have exacerbated education inequalities, putting students from disadvantaged socioeconomic backgrounds at risk of falling behind. Many countries have resorted to distance teaching and learning. But whereas such modalities reach between 80 and 85 percent of students in developed countries, they reach less than 50 percent of students in developing countries (UNESCO, UNICEF and World Bank 2020).

Mindful of the widening achievement gap between students from high socioeconomic and low socioeconomic backgrounds, countless responses to mitigate the virus transmission and thereby stemming the learning loss from the impact of Covid-19 have been taken. The most visible and dramatic response has been the sudden shift away from classroom to remote education. The common remote teaching and learning modalities are printed worksheets, radio and television broadcasts, and online learning platforms; these learning activities involve either online instruction or self-study (Azevedo et al. 2020; Huang et al. 2020). Most higher education institutions (HEIs) have adopted educational technology (edtech), such as asynchronous recorded lecture videos and synchronous live sessions/video conferencing, across a wide range of online learning platforms to ease the upheaval in education.

Against this backdrop, the twofold aim of this study is to: identify the challenges and opportunities posed by the immediate response to school and university closures; and assess the edtech readiness and preparedness of HEI teaching staff. This study is a part of a larger study on the adoption of edtech in higher education in response to the Covid-19 pandemic.

The rest of the paper is divided into five sections. The next two sections review the disruption and opportunities in the global context during the pandemic and HEIs' responses in Cambodia. The fourth and fifth sections present the study methodology and findings, respectively. The last section concludes with some policy

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recommendations on how Cambodia can be better prepared for future crises.

Educational disruption and opportunities during Covid-19

Due to the shortage of technological infrastructure and human resources to develop online learning materials and platforms, some universities have postponed teaching and learning indefinitely, with no clear date for students to return to physical classrooms. Marinoni, Land and Jensen (2020) caution that adaptability to the closedown and sudden transition to distance learning depends on students' technological readiness and preparedness and faculty's capabilities to use edtech in delivering and administering online learning activities. Lapada et al. (2020) highlight the pressing challenges created by the rapid adoption of edtech forced on faculty and the immense pressure caused by the mass rush to online classes. The most significant of these are the knowledge and skills online educators need for conducting distance learning, assessing student outputs, and, above all, maintaining students' active engagement and teacher-student interactions remotely.

The problem of engaging active student participation and encouraging effective teacher-student interactions in virtual lectures is underlined by Neuwirth, Jović and Mukherji (2020). They observe students' distractibility and inattention in the virtual classroom, for instance, lack of active participation and turning off the webcam during class. Because of such behaviours, faculty are unable to assess students' comprehension of subject matter or prevent further learning loss. This disruption to the education sector has become a hallmark of the "new normal" (De Giusti 2020) as edtech is expected to play an increasingly greater role even when the pandemic is no longer a crisis. The virtual classroom cannot entirely replace the physical classroom, however. Indeed, there is no evidence that remote learning can improve knowledge production (Azevedo et al. 2020).

The issue of teachers' attitudes towards the use of technology in education is not a new one. Global studies indicate positive attitudes and experiences among teaching staff towards the adoption of edtech. In fact, educators have capitalised on this exceptional opportunity to explore different instructional approaches, such as flexible, blended and hybrid learning, and to learn technology skills and experiment with e-learning platforms (learning management systems), technological devices and tools (Donitsa-Schmidt and Ramot 2020).

The findings of a global survey on the impact of Covid-19 on HEIs demonstrate that faculty members expect distance learning to remain a significant component of lesson planning in the future and look forward to further pedagogical innovations and new teaching and learning delivery methods (Marinoni, Land and Jensen 2020). They also emphasised the importance of a proper framework for learning assessment that can be used to support and test learning outcomes effectively and accurately.

Cambodian HEIs' response to Covid-19

Cambodia confirmed its first case of Covid-19 on 27 January 2020, a man returned from Wuhan, China (WHO 2020); and its second case on 7 March 2020, a Siem Reap resident. On 16 March 2020, the day after five new cases were confirmed in a single day, the Ministry of Education, Youth and Sport (MoEYS) issued a directive to close all schools nationwide until further notice as a measure to minimise the spread of the virus (UNESCO 2020a).

Cambodia, similarly to other developing countries, faces big challenges to its education sector during this crisis. Its higher education system, for example, has had to quickly adopt online platforms as physical classes were abruptly shut down in mid-March. Despite MoEYS guidelines for general education, such as initiatives to televise lessons and deliver live lectures on social media, higher-education learning was left to the decision of each HEI (UNESCO 2020b). Despite their limited resources, HEIs have no option but to embrace technology to keep learning going.

After the directive issued by MoEYS on 16 March, schools and universities closed down their campuses and resorted to online learning. However, progress has been highly uneven. Some leading universities and international schools were already equipped with necessary devices and facilities and had incorporated learning management systems (LMS) into their curriculum. They could therefore provide orientation and training on edtech tools to their teaching staff and embark on online teaching quickly.

Less well-off schools and universities, especially TVET institutes outside of Phnom Penh, found themselves constrained with few tools or guidelines

for them to move forward. It was not until sometime later that their online modules could start. According to a survey conducted by CDRI's Centre for Educational Research and Innovation of 17 HEIs, only eight HEIs had started offering some form of online learning by 12 May, the date MoEYS issued another directive requesting schools to move classes online. The remaining nine HEIs commenced distance learning after mid-May, two months after school closures.

Methodology

The study used Creswell and Clark (2018)'s mixed-method by combining quantitative analysis based on teaching staff survey and qualitative analysis of transcribed key informant interviews (KIIs) with managing staff at HEIs. It is a part of a larger study on the use of ICT in teaching and learning at Cambodian HEIs and the forced adoption of edtech during the Covid-19 pandemic. Only some parts from the teaching staff survey and related information from the KIIs were used for the analysis in this study.

For the teaching staff survey, we used a two-stage sampling method to select 370 teaching staff from 20 HEIs. According to the latest Education Congress Report, there are 124 HEIs in Cambodia under 16 different ministries and agencies, of which 101 (81.45 percent) are under MoEYS and the Ministry of Labour and Vocational Training (MLVT) (MoEYS 2020). For logistics reasons, this study excluded the HEIs under the other 14 ministries and agencies from the sampling frame. The lists of HEIs and student enrolment statistics were obtained from MoEYS and MLVT; however, these lists did not include the private HEIs under MLVT.

HEIs with an enrolment rate of less than 500 were excluded, leaving 75 HEIs for the first-stage sampling. To select 20 HEIs as the primary sampling units, the study used systematic sampling with probability proportional to size, measured by the total student enrolment. This ensured that the main HEIs with large numbers of students are more likely to be selected from the sampling frame. In the second-stage sampling, all lists of teaching staff obtained from the selected HEIs were pooled for simple random sampling. The fieldwork was conducted in Phnom Penh, Svay Rieng, Kampot and Battambang. The survey was administered in digital format using KoboToolbox through face-

to-face interviews between 27 September and 11 November 2020.

KIIs, guided by a semi-structured interview protocol, with 17 of the 20 HEIs selected in the first-stage sampling were conducted face-to-face between 3 August and 3 November 2020. We interviewed HEI management staff including vice presidents or deputy directors in charge of academic affairs, chief academic officers, ICT faculty/department deans and IT staff. The qualitative data, used to triangulate the information from the teaching staff survey, was mainly drawn from the section on the impact of Covid-19 and the solutions implemented by HEIs during the pandemic.

Findings

In this section, we briefly describe the characteristics of the respondents as shown in Table 1, before presenting the key findings based on teaching staff's views on distance learning. Respondents were asked to rate, using the five-point ordinal Likert scale, how much they disagree or agree with a set of statements related to challenges and opportunities of delivering remote education during the pandemic. The survey questionnaire was developed by the authors based on the Cambodian context and interviews with several management staff at HEIs. In the whole sample, nonparametric frequency analysis was applied to disaggregate teaching staff's opinions. However, to examine the differences in teaching staff's perceptions of distance learning, the ordinal Likert scale was treated as a continuous interval scale for subgroup comparisons. In the subgroup analysis, respondents are aggregated by gender, HEI type, programme orientation, and HEI location.

Characteristics of respondents

Teaching in Cambodian HEIs remains heavily dominated by men. The total sample therefore comprised small numbers of female university (8.31 percent) and TVET (15.79 percent) respondents. The average age of university faculty members is 41.37 years and that of TVET teaching staff is 37.74 years. Roughly half of them (45.05 percent for university and 57.89 percent for TVET) fall into the 31–40 years age cohort.

More than 72.00 percent of university faculty members hold master's degrees and around 13.00 percent hold doctoral degrees. A further 12.14 percent had enrolled in PhD programmes but had

Table 1: Characteristics of respondents

	University		TVET Institute	
Gender				
- Female		8.31%		15.79%
- Male		91.69%		84.21%
Age				
- < 30 years		6.71%		15.79%
- 31-40 years		45.05%		57.89%
- 41-50 years		35.78%		21.05%
- > 50 years		12.46%		5.26%
Qualification				
- Higher Diploma		0.00%		5.26%
- Bachelor's degree		2.56%		31.58%
- Master's degree		72.52%		63.16%
- Incomplete PhD*		12.14%		0.00%
- Doctoral degree		12.78%		0.00%
Years of Teaching Experience				
- < 5 years		21.73%		26.32%
- 6-10 years		26.52%		28.07%
- 11-20 years		40.58%		36.84%
- > 20 years		11.18%		8.77%
Online Teaching Experience Before Covid-19				
- Yes		10.90%		1.75%
- No		89.10%		98.25%
Training on Online Teaching				
- Yes		84.98%		70.18%
- No		8.31%		24.56%
- Do not teach		6.71%		5.26%

Note: *PhD student, PhD candidate, all but disseratation, or dropout

not successfully completed them. The teaching qualifications held by staff at TVET institutes are much lower; about a third of TVET respondents hold only bachelor's degrees or higher diplomas, 63.16 percent hold master's degrees and none of them had ever enrolled in a PhD programme.

Respondents' teaching experience ranges from less than one year to over two decades. Just over half of university respondents have taught at HEIs for 10 years or more. Almost 11.00 percent of university faculty members had some sort of online teaching experience before the Covid-19 outbreak compared to only 1.75 percent of TVET teaching staff. A large proportion of teaching staff (84.98 percent at universities and 70.18 percent at TVET institutes) received some form

of training on how to conduct distance learning after school closures.

Challenges during the Covid-19 pandemic

As illustrated in Figure 1, poor internet connection, difficulty assessing student performance remotely, problems of online group discussion, interruptions, and time spent preparing online lessons are the issues most commonly raised in the teaching staff survey. Sixty-nine percent of the respondents either agree or strongly agree that students have difficulty accessing online learning due to poor or limited internet connection and that it is difficult to assess student performance remotely. These issues were confirmed in the KIIs with management staff at both universities and TVET institutes. The main problem is unstable internet/connection drops, particularly in rural areas, due to undeveloped telecommunications infrastructure.

The need to access the internet for learning puts an added financial burden on poor students as their families are likely to be hit hard by the Covid-19 pandemic. To address this challenge, one HEI, with external funding sources, provides poor students with a special allowance of USD 50 to cover internet fees and to buy learning materials. Many HEIs admitted that it is difficult to reduce let alone prevent cheating

Figure 1: Teachers' views on the challenges to education during the Covid-19 crisis
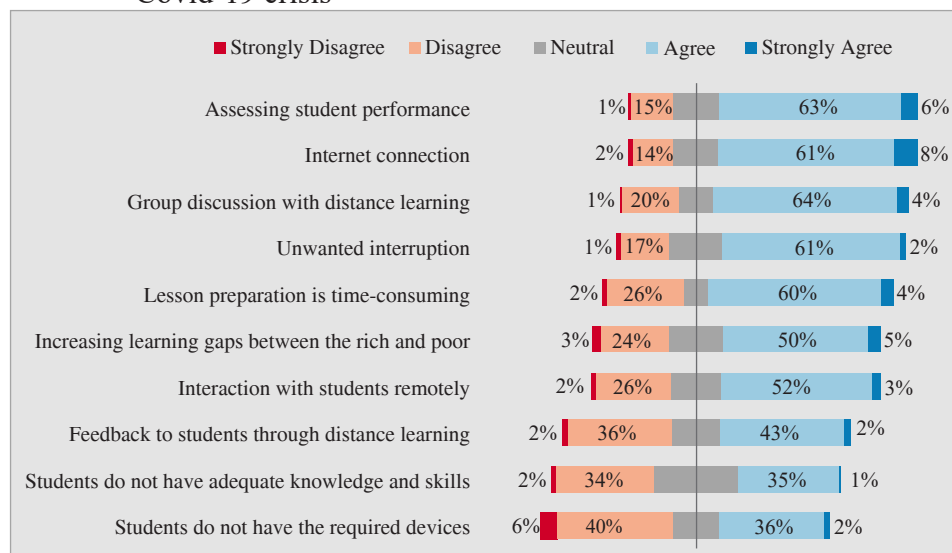
Table 2: Teachers' views on the challenges to education during the Covid-19 crisis by subgroup

	M	F	Dif.	Public	Private	Dif.	University	TVET	Dif.	Phnom Penh	Province	Dif.
Assessing student performance	3.6	3.5	0.1	3.7	3.5	0.2	3.5	3.9	-0.4	3.6	3.7	-0.1
Internet connection	3.6	3.7	-0.1	3.7	3.5	0.2	3.6	3.7	-0.1	3.5	3.9	-0.4
Group discussion with distance learning	3.5	3.6	-0.1	3.6	3.4	0.3	3.5	3.8	-0.3	3.4	3.7	-0.3
Unwanted interruption	3.5	3.3	0.1	3.5	3.4	0.0	3.5	3.5	0.0	3.4	3.6	-0.2
Lesson preparation is time-consuming	3.3	3.7	-0.4	3.4	3.4	0.0	3.3	3.7	-0.4	3.3	3.5	-0.2
Increasing learning gaps between the rich and poor	3.3	3.3	0.0	3.4	3.2	0.2	3.2	3.8	-0.5	3.2	3.5	-0.3
Interaction with students remotely	3.2	3.7	-0.5	3.4	3.2	0.1	3.2	3.8	-0.6	3.2	3.4	-0.2
Feedback to students through distance learning	3.1	3.2	-0.2	3.2	3.0	0.2	3.0	3.6	-0.6	3.1	3.2	-0.1
Students do not have adequate knowledge and skills	3.0	3.0	0.0	3.1	2.9	0.2	2.9	3.2	-0.2	3.0	3.1	-0.1
Students do not have the required devices	2.9	3.0	-0.1	3.0	2.8	0.2	2.8	3.0	-0.2	2.9	3.0	-0.1
Total Average	**3.3**	**3.4**	**-0.1**	**3.4**	**3.2**	**0.2**	**3.3**	**3.6**	**-0.3**	**3.3**	**3.5**	**-0.2**

when assessment is conducted remotely.

However, the design of effective and transparent student assessment is not a top priority as the immediate imperative is to ensure technology proficiency by familiarising students and teachers with technological tools and devices. Besides, student's knowledge and skills and access to necessary devices as also their concerns, but it seems to be less severe in comparison to challenges mentioned earlier. According to the KIIs, most students possess at least a smartphone and a majority of junior and senior students have access to personal computers.

The subgroup analysis, shown in Table 2, indicates that distance learning is a big concern for female teachers, teachers at public HEIs, teachers outside Phnom Penh capital, and teachers at TVET institutions. For instance, the average Likert scores suggest that female respondents are more likely than male respondents to agree that interacting with students remotely is challenging and that planning for online lessons is time-consuming. Teaching staff at private universities seem to find delivering online lessons less challenging and feel their students have fewer problems with the skills and devices needed for online learning. The delivery of distance learning outside the capital faces a bigger hurdle, however, with some noticeable constraints such as unstable internet/connection drops and lack

of student participation in online discussions.

Teaching staff at TVET institutes seemed to find distance learning the most challenging; the perceived barriers with a mean score higher than 3.8 include assessing student performance, limited group discussion, increasing learning gaps between rich and poor students, and interacting with students remotely. Furthermore, TVET students appear to have distinct characteristics as TVET teaching staff were especially concerned about students acquiring adequate knowledge and skills and access to devices required for distance learning. As the KIIs with TVET institutions revealed, it is impossible to move some subjects online as many practical courses require students to attend workshops in person or do laboratory work.

Opportunities brought by the Covid-19 pandemic
Although Covid-19 has briefly interrupted learning and posed great challenges to higher education, the surveyed teaching staff also acknowledged the opportunities brought by the pandemic. Nearly all of the respondents either agreed or strongly agreed that online learning should be blended with the traditional approach in the future and that it is a good opportunity for schools to further integrate edtech into higher learning. The interviewed management staff concurred with these ideas and would consider the possibility of introducing blended learning

Figure 2: Opportunities based on teaching staff's opinions
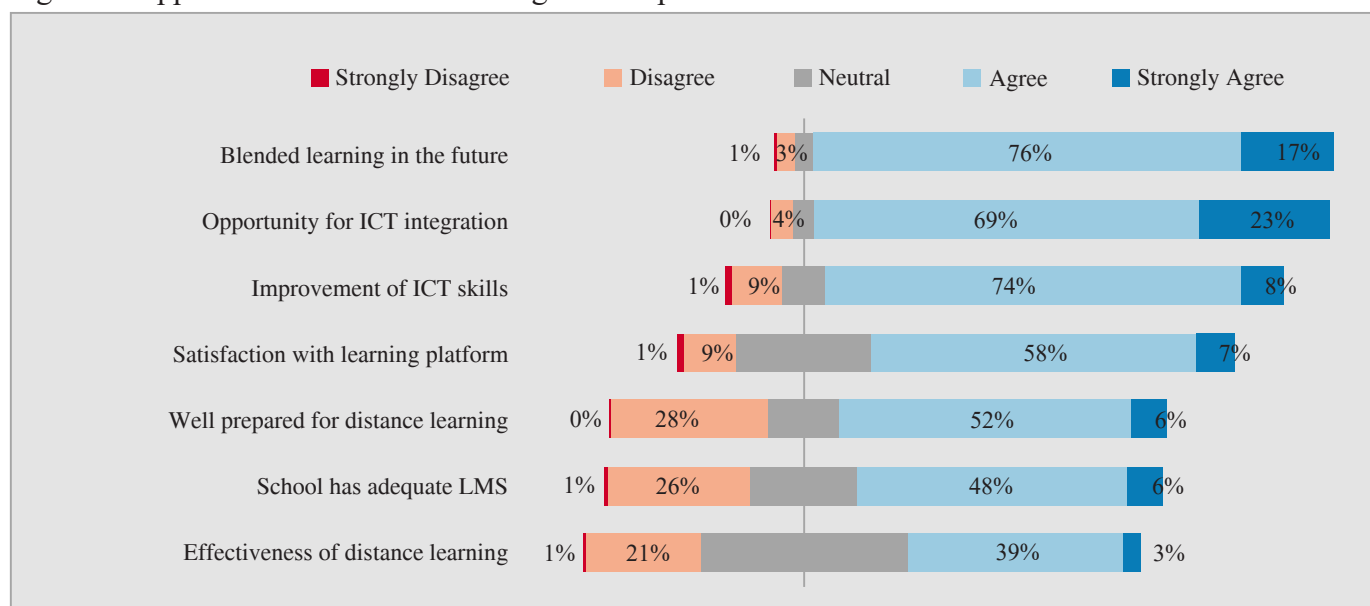
or offering online courses in the future when the situation returns to normal.

A majority of the respondents reported that the experience of conducting distance learning had improved their ICT skills and thought it a good opportunity for schools to integrate more edtech into learning. About two-thirds of the respondents were satisfied with the current e-learning platforms adopted by their HEIs. In other words, a large number of respondents felt they were well prepared for distance learning and that the current e-learning platforms were good enough for distance learning. However, according to the KIIs, most of the sampled HEIs could not make substantial investments in the building of sophisticated or customised LMS due to

high costs and limited human resources. According to the teaching staff survey and KIIs, the most popular platforms are Microsoft Teams and Google Classroom and some HEIs use only Telegram (an online messaging app) as a platform for distance learning. Teaching staff were also less optimistic about the effectiveness of distance learning; only around 40 percent of them considered online learning an effective learning approach.

The subgroup analysis, reported in Table 3, shows that most of the teaching staff regardless of their gender or affiliation felt positive about blended learning in the future and considered the pandemic a good opportunity for HEIs to integrate edtech into learning and teaching. On average, respondents

Table 3: Teachers' views on the opportunities introduced by Covid-19 by subgroup

	M	F	Dif.	Public	Private	Dif.	University	TVET	Dif.	Phnom Penh	Province	Dif.
Blended learning in the future	4.1	4.1	-0.1	4.0	4.1	0.0	4.1	4.1	0.0	4.0	4.2	-0.2
Opportunity for ICT integration	4.1	4.1	0.0	4.1	4.1	-0.1	4.1	4.1	0.0	4.1	4.2	-0.1
Improvement of ICT skills	3.8	4.0	-0.3	3.8	3.8	0.0	3.8	3.8	0.0	3.8	3.8	0.0
Satisfaction with online learning platform	3.6	3.6	0.0	3.5	3.7	-0.3	3.7	3.1	0.5	3.6	3.5	0.1
Effectiveness of distance learning	3.2	3.2	0.1	3.1	3.3	-0.2	3.3	2.9	0.4	3.3	3.2	0.1
School has adequate LMS	3.3	3.5	-0.2	3.1	3.5	-0.4	3.4	2.8	0.6	3.4	3.0	0.4
Well prepared for distance learning	3.4	3.2	0.2	3.2	3.5	-0.4	3.5	2.8	0.6	3.4	3.2	0.3
Total Average	**3.6**	**3.7**	**0.0**	**3.5**	**3.7**	**-0.2**	**3.7**	**3.4**	**0.3**	**3.7**	**3.6**	**0.1**

in all subgroups rated these two statements higher than four out of five. Despite the challenges female teaching staff have faced, they were no less optimistic about the outcomes as a result of the pandemic. They believed that online teaching has helped them improve their ICT skills. Teaching staff at public HEIs, at TVET institutes and HEIs outside the capital felt less positive about the opportunities introduced by the Covid-19 outbreak. The average scores for effectiveness of distance learning, adequacy of LMS, and preparation for distance learning among TVET teaching staff are under 3.

Conclusion

Without doubt, the Covid-19 pandemic has immense negative impacts on higher education in Cambodia. The findings demonstrate that unstable internet connection and difficulty assessing student performance are the biggest obstacles impeding the effective delivery of distance learning. Female teaching staff, and teaching staff at TVET institutes, public HEIs and HEIs outside the capital are more likely to be constrained by the pandemic in continuing their lessons using educational technologies. In particular, TVET teaching staff need more technical support if traditional classrooms are to be replaced with virtual learning environments.

Nevertheless, the pandemic has pushed schools to bring about much needed innovation by integrating new educational technologies in learning and teaching and supporting teaching staff to acquire new knowledge and skills. It has been a catalyst for schools and teachers to re-envision alternative approaches, such as blended learning and massive open online courses, and integrate them into future course and curriculum design. To ensure that all students across Cambodia can benefit from distance learning, there is an urgent need to substantially improve internet connectivity through large-scale investment in telecommunications infrastructure outside Phnom Penh.

References

Azevedo, João Pedro, Amer Hasan, Diana Goldemberg, Syedah Aroob, and Iqbal Koen Geven. 2020. *Simulating the Potential Impacts of COVID-19 School Closures on Schooling and Learning Outcomes: A Set of Global Estimates*. Policy Research Working Paper Series 9284. Washington, DC: World Bank.

Creswell, John W., and Vicki L. Plano Clark. 2018. *Designing and Conducting Mixed Methods Research.* Third Edition. Los Angeles, CA: Sage Publications.

Donitsa-Schmidt, Smadar, and Rony Ramot. 2020. "Opportunities and Challenges: Teacher Education in Israel in the Covid-19 Pandemic." *Journal of Education for Teaching 46* (4). doi.org/10.1080/02607476.2020.1799708.

Giusti, Armando De. 2020. "Policy Brief: Education During COVID-19 and Beyond." *Iberoamericana De Tecnología En Educación Y Educación En Tecnología* 26. doi.org/10.24215/18509959.26.e12.

Huang, Ronghuai, Dejian Liu, Changjie Chen and Haijun Zeng, et al. 2020. *Handbook on Facilitating Flexible Learning During Educational Disruption: The Chinese Experience in Maintaining Undisrupted Learning in COVID-19 Outbreak.* Beijing: Smart Learning Institute of Beijing Normal University.

Lapada, Aris Alea, Frosyl Fabrea Miguel, Dave Arthur Roldan Robledo and Zeba Farooqi Alam. 2020. "Teachers' Covid-19 Awareness, Distance Learning Education Experiences and Perceptions towards Institutional Readiness and Challenges." *International Journal of Learning, Teaching and Educational Research* 19 (6): 127–44.

Marinoni, Giorgio, Hilligje Van Land and Trine Jensen. 2020. "The Impact of COVID-19 on Higher Education around the World: IAU Global Survey Report." Paris: International Association of Universities.

MoEYS 2020. "Education Congress: The Education, Youth and Sport Performance in the Academic Year 2018-2019 and Goals for the Academic Year 2019-2020." Phnom Penh: MoEYS

Neuwirth, Lorenz S., Svetlana Jović, and B. Runi Mukherji. 2020. "Reimagining Higher Education During and Post-COVID-19: Challenges and Opportunities." *Journal of Adult and Continuing Education* 0 (0): 1–16.

UNESCO. 2020a. "UNESCO's Response in Cambodia Building Back Better." Phnom Penh: UNESCO Office. https://unesdoc.unesco.org/ark:/48223/pf0000373583.

UNESCO. 2020b. "UNESCO Cambodia's Support of the Ministry of Education, Youth and Sport to Provide an Immediate Response to the Impact of COVID-19 on Learning." https://en.unesco.org/news/unesco-cambodias-support-ministry-education-youth-and-sport-provide-immediate-response-impact.

UNESCO, UNICEF and World Bank. 2020. "Survey on National Education Responses to COVID-19 School Closures, Round 2." Paris; New York; Washington, DC: UNECSO, UNICEF, World Bank.

WHO. 2020. "Ministry of Health Responds to First Positive Case of New Coronavirus." World Health Organization. News Release 28 Jan 2020. www.who.int/cambodia/news/ detail/28-01-2020-ministry-of-health-responds-to-first-positive-case-of-new-coronavirus.

World Bank. 2020. "The COVID-19 Crisis Response: Supporting Tertiary Education for Continuity, Adaptation, and Innovation." Policy Note. Washington, DC: World Bank.