

COVID's Lessons for Global Higher Education



Coping with the Present while
Building a More Equitable Future

By Jamil Salmi

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Foreword

This report was written over the course of the first six months of the pandemic, roughly from March to October 2020. During and since that time, much has transpired in terms of the pandemic and its implications for the world. As of mid-November 2020, there have been over 58 million cases of COVID-19 worldwide, the global death toll is close to 1.5 million, and the virus continues to spread faster than ever before in many countries. The International Monetary Fund recently released its annual report underscoring the “uncertain outlook” and the likelihood of a deep global recession—a prediction backed widely by economists around the world.*



Our international well-being has never felt so fragile for most of us alive today. Amid this backdrop, the international perspective—which this report offers—is critical to our understanding of emerging trends, issues, and priorities in higher education. Author Jamil Salmi thoroughly catalogs the global issues in higher education that have been caused—or in some cases just intensified—by the pandemic. He offers insight into what is working and not working in very different contexts across the globe, and summarizes lessons learned for higher education leaders and policymakers at the institutional and national levels.

Perhaps, most importantly, this study shines a light on the specific hardships encountered by racially and socio-economically minoritized populations around the world, deepening systemic inequities in higher education. For instance, the move to online learning and assessment has layered on yet another challenge for students who lack affordable access to reliable internet service and devices. Growing racial inequities in higher education are especially troubling here in the United States where, alongside the pandemic, ongoing racial injustices have led to social uprisings and unrest, reinforcing the deep systemic racism in the country and the need for reform.

The medium-term impacts predicted by Salmi—that “COVID-19 is likely to have negative effects on the learning outcomes, graduation rates, employability and job prospects of traditionally under-represented students and on the economic health of higher education institutions—” seem inevitable. At the same time, the pandemic is slowing or stopping much of the non-COVID-related work of scholars, researchers, and scientists, adding to the lost progress that is likely to be felt for decades to come. Higher education systems around the world—including the many people who work and study within those systems—are undeniably more vulnerable to economic and health-related risks now, at the end of 2020, than they were at the onset of the pandemic.

While the challenges ahead have never been more daunting, the stakes for global higher education are higher than ever. Equipping all people with the learning they need to gain social mobility and good jobs so they can, in turn, contribute their skills and talent to advancing our collective economic, political, and social well-being has never been more critical to worldwide stability and progress.

Salmi aptly presents this critical moment as an opportunity to prioritize what has long been on society’s back burner: the difficult work of enacting the long-term systemic changes that must take place if higher education is to help the world reach its true potential.

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* <https://www.imf.org/external/pubs/ft/ar/2020/eng/downloads/imf-annual-report-2020.pdf>

Table of Contents

Executive Summary	3
Background	4
Impact of COVID-19	5
Mitigation and Transformation Measures	7
Conclusion	12
Main Messages and Policy Lessons	12
Introduction	14
Background	15
Objective	15
Methodology	15
Outline of the Study	16
Main Messages	16
Impact of COVID-19	17
Short-Term Effects and Reactions	18
Closures and Transition to Online Education	18
Impact on Students	25
Assessment and Exams in Transition	31
Universities Rising to the COVID-19 Challenge	34
Longer-Term Effects	37
Reopening in the Fall	38
Diminished Learning and Increased Student Failure	42
Reduced Resources, Shifting Demand, Closures and Restructuring	44
Impact on Research and Internationalization	50
Mitigation and Transformation Measures	52
National Policies	53
Financial Support	53
Capacity Building for Connectivity and Online Education	59
Flexibility in Quality Assurance and Assessment	60
Summary of Policy Lessons at the National Level	63
Institutional Policies	64
Innovative Educational Approaches and Models	64
Research Continuity and the Enhanced Scientific Role of Universities	70
Governance and Leadership Beyond the Pandemic	72
Inventing a New Economic Model	75
Equity-Focused Responses	77
Summary of Policy Lessons at the Institutional Level	81
Angels and Vultures: Support from Other Actors	82
Conclusion: the Post-Pandemic Landscape	84
Endnotes	87
References	90
About the Author	99

Executive Summary



Dear God: Could you please uninstall and install 2020 again? It has a virus. — Anonymous

Things won't change as much as they will accelerate. While other crises reshaped the future, COVID-19 is just making the future happen faster. — Scott Galloway

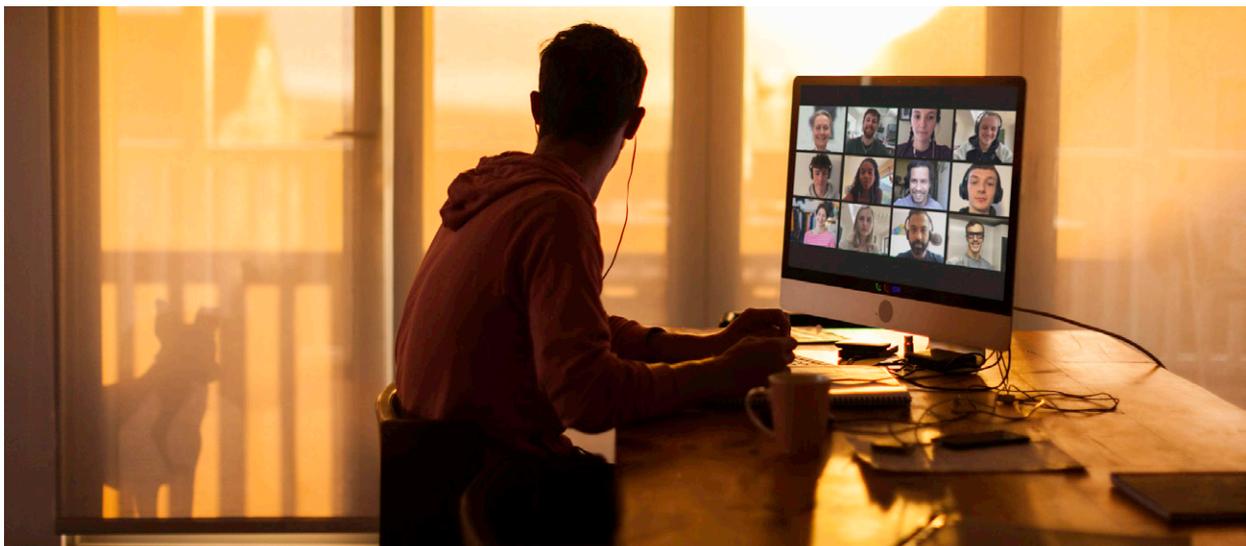
Background

The scale of the ongoing COVID-19 pandemic is unprecedented in the 21st century. As of October 1, 2020, more than 34 million people had been infected and more than a million had died, worldwide. As country after country imposed partial or total lockdowns in February and March, the number of universities and colleges closing down their campus, interrupting face-to-face activities, and switching to e-learning soared on a daily basis, eventually affecting more than 200 million students globally. However, few of these institutions were well prepared for the sudden, disruptive move. A lot of scrambling, improvisation, and continuous adaptation have occurred as administrators, academics, and students struggle to implement online learning.

While the disruptions caused by the COVID-19 pandemic are affecting rich and poor countries alike, disrupting the lives of all groups in society, the impact on students from vulnerable groups may be greater than for the average student population. In low-income countries, students from underrepresented groups have

faced greater challenges due to more severe resource and capacity constraints. Also, in countries with limited internet deployment and low broadband capacity, opportunities for online learning have been drastically constrained, especially in rural areas. In addition to these technological challenges, colleges and universities in low-income nations have struggled to launch quality distance education programs because they lack resources, experienced educators, and strong institutional capacity.

Against this background, this study offers a preliminary assessment of the impact of the COVID-19 pandemic on higher education throughout the world, with a special focus on racial justice and equity. While it is too early to form a clear picture of the multiple effects and consequences of this ongoing health and economic emergency, it is possible to analyze the main challenges it presents and to see the range of responses from nations, institutions, and individuals. The study seeks to evaluate, in particular, the special hardships encountered by students from underrepresented groups and the effectiveness of policies and measures put in place to protect and support them at both the national and institutional level.



Impact of COVID-19

Short-Term Effects and Reactions

Closures and Transition to Online Education. Despite repeated warnings from the World Health Organization, few countries were prepared for a possible pandemic in February 2020. When it became clear in early March that COVID-19 was spreading rapidly on a global scale, most governments finally showed alarm and began shutting down businesses, schools, and universities. Within a few weeks, about 20,000 higher education institutions had ceased normal operation, sending home close to 200 million students. Many institutions switched to online classes after only a few days of preparation. In the words of Professor Anant Agarwal, founder and CEO of edX: “The world went from 1 or 2 or 3 percent learning online to 100 percent learning online.”

These campus closures certainly helped prevent the spread of the virus within higher education institutions. At the same time, they forced colleges and universities to operate in unfamiliar ways, spend significant sums to rapidly shift to online instruction, and indefinitely suspend all other activities, including research and lab and field work.

Even though higher education institutions tried very hard to make online education work, the degree of readiness for the rapid transition to an all-online environment was highly unequal across countries and institutions. Very few of the world’s universities and colleges had the foresight and capacity to conduct risk analysis and contingency planning on a regular basis, even though a number of Asian universities had been forced to close down during the 2002-2003 SARS epidemic. Universities and colleges in developing countries faced serious difficulties with IT infrastructure and internet access during the transition to online instruction. In all countries, however, rich or poor, elite institutions tend to be best equipped to face an emergency such as COVID-19.

Impact on Students. The abrupt closure of campuses and the rapid switch to online education have disrupted students’ lives all over the world. It’s no surprise that students from underrepresented groups (low-income students, girls and women, members of minority groups, and students with special needs) have been hit especially hard—economically, emotionally, and in terms of digital deprivation. In poorer countries, students from disadvantaged groups face even greater difficulties.

Assessment and Exams in Transition. Almost immediately after moving to online teaching and learning, higher education institutions had to make decisions about assessment, examinations, and graduation. Many have struggled to decide how to assess student learning remotely, whether to postpone or cancel final exams, and how to select and recruit students for the next academic year, especially in countries that had to scratch the national end-of-high-school exams that determine university access. A big concern for many higher education institutions has been to avoid increased cheating and plagiarism during online examinations.

Universities Rising to the COVID-19 Challenge.

One positive short-term development is that universities worldwide have responded dynamically to the pandemic, generously contributing their scientific knowledge and resources to help fight COVID-19. Within weeks of the virus’ initial onslaught, universities developed a faster and cheaper COVID-19 test and donated surplus equipment to hospitals. Laboratories within universities also have been busy producing medical supplies, sanitizing equipment, and medicines. Universities all over the world have helped with genome sequencing, coronavirus testing, and production of low-cost ventilators. They also have been at the forefront of epidemiological research and communication. The public information role of universities during the pandemic is all the more important as many people across the world have fallen prey to fake news disseminated in the social media, often with dangerous or even fatal consequences.

Likely Long-Term Effects

While it is difficult to predict the pandemic’s ultimate toll, it can be useful to outline some of its likely long-term effects based on current trends and available information.

Reopening in the Fall. The debate about whether colleges and universities can reopen safely at the beginning of academic year 2020-21 has been shaped, in each country, by two factors: the evolution of the pandemic, and political priorities. In nations where the peak of COVID-19 cases was reached after a few months, governmental authorities and leaders of higher education institutions have generally decided that it would be safe to reopen the campuses, although with specific precautionary measures (testing, tracing, and social distance). But in countries where the pandemic is still raging, including the United Kingdom, the United

States and most of Latin America, the outlook is uncertain, and decisions may have been heavily influenced by political and economic considerations. Reactions ranged from outright denial to the implementation of various coping strategies, all dependent on the levels of resources that individual universities and colleges could afford to dedicate to protective health measures. In several countries, including the United States, the threat of economic difficulty may have led many higher education institutions to take chances with students' health.

Diminished Learning and Increased Student Failure.

Despite a lack of statistics documenting the pandemic's impact on student learning, it is safe to assume that many students all over the world will have had an incomplete learning experience in the 2019-20 academic year, either for lack of technology, inadequate internet access, or insufficient training for online education. In addition to degradation of the educational experience during COVID-19, students are also suffering more mental health problems, and there is evidence that female students in developing countries are more likely than males to suffer from the crisis.

In an effort to quantify the educational damage caused by the pandemic, Connie Schrock, a mathematics

professor at Emporia State University in Kansas, has proposed the notion of Years of Potential Intellectual Life Lost (YPILL). The YPILL—modeled on the concept of “years of potential life lost” used in epidemiology—would be a composite index of decline in student learning outcomes based on test scores, years of study lost, and the impact of diminished research.

Reduced Resources, Shifting Demand, Closures, and Restructuring.

The higher education sector has been hit by both the health emergency and the economic recession, as universities, students, and most households have suffered substantial income loss. The rapid transition from face-to-face to online education has caused unplanned expenditures during the spring semester, and additional spending on health prevention measures was required to prepare for the fall term. Altogether, the outlook for the 2020-21 academic year and beyond is highly worrisome, forcing difficult questions about long-term viability and the need for substantial changes.

Generally speaking, the crisis has revealed structural weaknesses in the financing models of many higher education systems and institutions. In OECD countries with substantial cost-sharing, universities and colleges will have fewer resources. For private higher education institutions that depend fully on tuition and/or on



international students, financial survival will be seriously tested during the deep recession that many economists predict. Many students with limited resources could drop out of higher education altogether, or at least shift to more affordable public institutions. It's realistic to expect a wave of mergers in the public and private sectors, and many private institutions may close their doors for good. In many developing nations, where public funding for higher education has often been insufficient—usually less than 0.5 percent of GDP—the consequences could be dire. Reduced public budgets, combined with the diminished likelihood of increased private funding, could mean that many students opt out of higher education, undermining institutions' ability to sustain the quality of teaching and research.

What is certain is that students graduating this year are facing difficult prospects in the medium and long terms. Many will have trouble finding jobs, and those who do will likely have starting salaries far below those earned by graduates of previous years. In developing countries, where unemployment was already chronically high because the economy cannot absorb the growing number of university graduates, the situation will only worsen.

Impact on Research and Internationalization. As universities continue to operate online, research activities will lag in many countries. Because of lab closures and travel restrictions, researchers in many disciplines can't conduct their experiments or field investigations, except when remote lab work and collaborations are possible. Virtually all research universities—public and private—face the likelihood of reduced funding in coming years, except for programs and projects directly aligned with national priorities or related to COVID-19. This will likely affect research capacity and output in universities in the poorest countries, which have been heavily dependent on funding from donor agencies.

Data on research production show that women academics seem to be affected more seriously than men. This reflects the skewed division of labor within households that serves to protect men's professional duties more than those of women.

The medium-term outlook for internationalization is dim. Continuing restrictions on travel and the issuance of visas have halted short-term mobility in most of the world. Academics and students who had planned longer-term relocation have been forced to suspend or cancel their projects. Colleges and universities everywhere are less likely to form new partnerships and collaborations.

Mitigation and Transformation Measures

National Policies

Financial Support. A number of industrial countries—including Denmark, France, Finland, Germany, Singapore, Taiwan, the United Kingdom, and the United States—have rapidly approved economic rescue packages that include funds to help colleges, universities, and/or students weather the crisis. Many governments also are providing targeted research funding to help universities develop a vaccine and identify effective medicines to treat COVID-19.

However, with a few exceptions (Colombia and Indonesia, for instance), few governments in developing nations have been able to provide a sizable stimulus package to support higher education during the pandemic.

Student aid is at risk in many countries, especially when it takes the form of loans rather than grants and scholarships, because of the high unemployment rate for graduates during the ongoing economic crisis. Moving to income-contingent loan repayment is a structural change that countries should consider as they seek more sustainable funding approaches.

An important policy aspect worth revisiting in the wake of the COVID-19 pandemic is the traditional competitive approach to research funding and research production—an approach that privileges publications in prestigious scientific journals over research impact and social relevance. The move toward an Open Science mode, which allows for more collaborative forms of research, can only occur on a large scale if research funders agree to modify their allocation methods and encourage grant applications that reflect partnerships across institutions and countries. Another equally important change would be the transition to open-access publishing of scholarly articles and books.

Capacity Building for Connectivity and Online Education. The second type of intervention that countries have implemented aims to increase connectivity for higher education institutions and their students, while helping colleges and universities to build their capacity to effectively deliver online education. Governments in Sub-Saharan Africa, in particular, have tried to strengthen broadband capacity through the National Education Research Networks (NRENs) and reinforce campus network infrastructure. These interventions can

have significant positive effects, but only if governments refrain from taking advantage of the health crisis to enforce internet shutdowns and censorship—a growing practice in many non-democratic countries to muzzle political dissent. Even industrial countries with a good broadband network have felt the need to enhance their digital infrastructure.

Flexibility in Quality Assurance and Assessment.

The switch to online education has made it much more difficult to assess students' learning progress. The pandemic also has prevented quality-assurance experts from making regular evaluation and accreditation visits. For these reasons, efforts have been made in some countries to bring greater flexibility in applying quality-assurance criteria and assessment methods. Many quality-assurance entities have suspended deadlines for accreditation and program registration processes, postponed accreditation visits or switched them to “virtual visits,” and relaxed assessment criteria to support the rapid transition to online education. The general trend has been to delegate responsibility for establishing quality online programs to the higher education institutions themselves and to issue blanket approvals of alternative assessment approaches.

One positive outcome of the COVID-19 crisis has been a more favorable view of online education, which in many countries had been considered as a second-rate kind of education, often subject to substantial constraints and strict regulations.

Institutional Policies

Innovative Educational Approaches. The first step to ease the transition to online education has been to offer crash courses—for instructors and students alike—in the use of digital platforms and application of effective techniques for online teaching and learning. Institutions with fully functional teaching and learning services have been better prepared to support their entire academic community in this transition, as have those with a strong digital capacity or a well-thought transition plan. Many colleges and universities also have seen higher levels of cooperation and experience-sharing among instructors across academic departments, schools, and faculties that would typically operate independently.

The first six months of the COVID-19 crisis revealed four sets of good practices that can aid the transition to online education. At the core of a successful online education experience is the adaptation of the curriculum, pedagogy, and assessment in the most suitable way to fulfill the mission of the institution and respond to the characteristics and needs of students.

Second comes the recognition that teaching online does not mean simply recording a traditional lecture and posting it to the web or using a videoconference platform to deliver the same lecture online as the instructor would give on campus. Effective online education requires teaching and learning methods that engage students dynamically in an enjoyable and stimulating education experience.



The pandemic has presented a great opportunity to scale up innovations that enable many active, interactive, and experiential modes of education delivery. Among these student-focused approaches are problem-based learning, self-learning, peer learning, team learning, the flipped classroom, and the use of simulations and games, all of which can be used separately or in combination.

The third important consideration is the need to fully align learning-assessment procedures and criteria with online curricular and pedagogical practices. Higher education institutions all over the world have explored various forms of alternative assessment: the pass/fail approach, open-internet/open-book exams, self-certification of online exams based on trust, collaborative forms, portfolios, next-generation assessments, etc.

Finally, many institutions have found it indispensable to establish, increase, or strengthen their academic and psychological support systems for students who have been personally affected by the health and economic crisis and have struggled to adjust to new teaching and learning approaches.

Research Continuity and the Enhanced Scientific Role of Universities. In many countries that face funding cuts, the prospects for recruiting young doctors and doctoral students are grim in the medium term. This is likely to reduce the number of new graduates in years to come and cut the research output of many universities.

While research funding has been reduced substantially for many programs and projects during the pandemic, many governments have commissioned universities to participate in medical and clinical research on treatments and vaccines. Some also have financed research on the social implications of the crisis and needed changes in public health planning. However, for research universities to make a strong contribution to recovery efforts, governments must recognize and respect their key scientific role. In the middle of the 2020 pandemic, it is sadly ironic that two nations leading the world in the number of COVID-19 deaths—the United States (No. 1) and the United Kingdom (No. 4)—are the ones with the most winners of the Nobel Prize for medicine in the past century and supposedly have the best universities in the world.





Governance beyond the Pandemic. The crisis has tested the leadership skills of college and university presidents in an unprecedented way, forcing them to make quick and vital decisions to protect the health of the academic community and maintain business continuity under taxing and uncertain conditions. This crisis has taught them the importance of good communication—of explaining frequently, honestly, and transparently the challenges COVID-19 presents. By contrast, the muddled approach taken by many countries and institutions in the wake of the fall 2020 semester has left many students and their families in limbo, creating additional stress and anxiety, and even putting the lives of students in danger.

One thing that has aided leaders' communication efforts is their reliance on early feedback from students and staff about the rapid transition to online education. Thinking about the post-pandemic times, higher education leaders would be well served to rely more frequently and systematically on such feedback mechanisms.

As higher education institutions scrambled to move rapidly from face-to-face to online education and remote work, many leaders saw value in increasing efforts to decentralize decision-making. By trusting and empowering administrators and instructors, allowing them to find

practical and innovative solutions to challenges, progress often came more quickly.

For higher education institutions in low-income countries, the COVID-19 crisis may be an opportune moment to form a few deep partnerships with universities in other countries that are willing to share their resources and experience in this time of emergency. This is especially true of South-South partnerships, in which countries of the Southern Hemisphere collaborate in the areas of digital education and online research.

As they look ahead to the post-pandemic era, leaders of higher education institutions should seek to answer three key questions. The first one is about the new vision for the future of their institutions. The second concerns the evolution of their own leadership style and governance structure during the pandemic. The last question is about identifying and seizing the new opportunities that this transformational experience offers to build more resilient institutions.

Inventing a New Economic Model. Though effects vary with the health and economic situation and the funding patterns of each country, it's clear that the pandemic has increased expenses and cut revenues.

Many higher education institutions are likely to suffer significant financial losses, some may have to close down, and most could use this opportunity to revisit their business and funding model. Among the structural features that make colleges and universities vulnerable are over-reliance on tuition fees, especially those from international students, lack of funding diversification, and lack of endowment. Generally speaking, public higher education institutions must try to balance public and private funding sources, while private colleges and universities ought to avoid depending only on tuition.

New opportunities may arise in the post-pandemic period. Higher education institutions could become serious about embracing adult learners as a legitimate segment of their target student population. Though national policies exist to expand lifelong education, few colleges and universities around the world have made significant efforts to offer programs designed for adult workers. Adopting a true focus on lifelong learning goes beyond offering short training courses with exclusively professional content. Rather, it means stressing the primacy of the learner and recognizing competencies acquired on the job. It also requires higher education institutions to organize themselves to accommodate the learning and training needs of a more diverse clientele: working students, mature students, stay-at-home students, traveling students, part-time students, day students, night students, weekend students, etc.

Finally, colleges and universities across the world could consider how to build on their networks to collaborate more systematically with partner institutions and pool their resources, instead of competing as they have in the past. Higher education institutions can explore new alliances that allow them to offer joint degrees, teach courses collectively, and conduct research collaboratively, combining their talent and financial resources more effectively.

Equity-Focused Responses. A priority task for many higher education institutions immediately after suspending on-campus activities has been to address the hardships experienced by students from low-income families and other vulnerable groups. This support has come in four types, often provided in combination: emergency financial assistance, support for access to online education, help with academic issues related to the switch to online education, and emotional support to relieve stress and anxiety.

Financial help has come in the form of additional grants,

interest-free loans, and access to food banks and food parcels, all paid for by the colleges or universities themselves or through emergency fund-raising.

To reduce the digital divide between rich and poor students, many institutions have donated or loaned out devices and offered students internet bundles to provide access to online resources.

Other institutions have strengthened their mechanisms to identify at-risk students and offer adequate academic support to prevent the switch to online education from undermining their academic success.

Finally, many colleges and universities have tried to boost their online health services to attend to the emotional needs of students and staff.

Angels and Vultures: Contributions of Other Actors

As the pandemic forced the closure of campuses all over the world, two opposing trends have changed the division of labor inside and outside higher education institutions. On the one hand, many colleges and universities have stepped in to provide direct assistance in areas where external players typically have intervened, including financial assistance, physical and emotional health care, support with food and access to housing, and support with technology and the internet. On the other hand, the pandemic has helped “unbundle” many activities traditionally handled within institutions, such as curriculum design, production of digital resources, organization of virtual classrooms, and the proctoring of examinations.

For this reason, the abrupt shift to broad-based online education has been a boon for education technology companies. While a few appear to have shamelessly taken advantage of the crisis by boosting prices or dumping flawed products on the market, many firms—inside and outside the education sector—have been generous in supporting the thousands of higher education institutions and millions of students left stranded by the pandemic. Telecom companies have offered free or highly subsidized internet packages and have exempted educational institutions from data charges for their websites. Firms and philanthropists in many countries have donated money, laptops, and tablets to help students adjust to online learning. Academics and students all over the world now have access to free courses and digital content in many languages.

Conclusion

The year 2020 is not the first time industrial and developing countries faced major crises. But never before have the strength of colleges and universities, in both rich and poor countries, been tested as severely as during the current pandemic. Furthermore, the health crisis has shown that, in higher education, digital and economic inequality aren't theoretical notions. Rather, they are huge and uncomfortable realities that directly affect the ability of colleges and universities to cope with the COVID-19 crisis and offer a high-quality education experience to all students.

While the world's top universities are unlikely to suffer adverse long-term consequences, many higher education institutions will face real financial peril during the deep recession that many economists predict. Many will close their doors for good. Millions of students with limited resources could drop out of higher education, or at least be forced to attend more affordable institutions. The higher education systems and institutions that emerge from the pandemic financially crippled won't sustain the progress of past decades, eroding opportunity for underrepresented students and increasing the already-high levels of educational inequality.

The main priority, therefore, is not to cope with the short-term effects of the pandemic, but to think carefully how to reshape higher education for long-term resilience. This unprecedented crisis portends drastic structural changes in the educational and business models of colleges and universities. The main question is whether most institutions are satisfied with a return to "normal," or whether they will embrace and widely implement some of the disruptive practices that they have implemented during the pandemic.

At this transitional time, with long-standing inequalities laid bare as never before, it is essential that nations, systems, and institutions focus on achieving fair and just outcomes for students who have long been denied them: students from low-income families, female students, and those representing racial and ethnic minorities. The next 12 months will be a critical test of the capacity of the international community, national and local governments, and higher education institutions to act swiftly and effectively in order to reverse the growing gaps between rich and poor countries, between well-endowed and resource-limited institutions, and among learners.

Main Messages and Policy Lessons

Main Messages

- With the pandemic interrupting face-to-face education on campuses all over the world—a possibility very few colleges and universities were prepared for—higher education institutions and students have experienced unprecedented disruption and face significant new challenges.
- Many institutions managed to switch to online education very rapidly and have done their best to provide continuity in teaching.
- It is a myth that COVID-19 has been a great equalizer. The digital gap and the lack of preparation for online instruction have actually increased educational disparities and created social distress, especially among vulnerable students.
- In the medium to long term, COVID-19 is likely to negatively affect the learning outcomes, graduation rates, employability, and job prospects of traditionally underrepresented students. It also is expected to worsen the already-precarious economic health of many colleges and universities.
- The move to online education poses significant opportunities for transforming the learning experience, whether remote or in person. Curricular and pedagogical practices could be reshaped to promote active, interactive, and experiential education, supported by aligned innovations in assessment and more flexible pathways and qualifications.
- Substantial changes are needed in the economic models of higher education systems and institutions to increase their resilience. Systems with higher proportions of public funding are less vulnerable to health and economic crises. Strong IT infrastructure and solid student aid programs (grants and income-contingent loans) are indispensable to foster inclusion.
- Higher education institutions need to integrate risk analysis and contingency planning more systematically. Comprehensive support (financial, academic, and psychological) for vulnerable students and faculty is necessary to foster inclusion and reduce inequalities.
- COVID-19 has helped colleges and universities demonstrate their "public good" contributions through relevant training, dissemination of scientific evidence, and direct help to government and local communities in combating the pandemic.

Policy Lessons at the National Level

- COVID-19 economic relief packages should protect employment in the higher education sector and provide emergency financial aid to all students in need.
- Public funding for higher education should prioritize short-term training programs with flexible pathways and scaffolding of credentials. Such programs, often offered by community colleges and technical institutes, provide opportunities to many low-income and minority students, and can play an important role in boosting economic recovery through relevant training, often in partnership with employers.
- Countries whose colleges and universities have a high level of financial dependence on fee-paying students, especially international students, should work to reduce this vulnerability.
- Student aid systems that include conventional student loans should consider switching to income-contingent loans.
- Entities that fund research should encourage Open Science and collaborative projects across institutions and countries. Such projects can pool talent and resources to foster multidisciplinary cooperation in addressing societal challenges.
- In developing countries where internet access is unequal and expensive, governments should strengthen broadband infrastructure and eliminate the digital gap among higher education institutions and students.
- Ministries in charge of higher education should support capacity building for online teaching, learning, and assessment.
- Assessment methods and quality-assurance approaches should adjust flexibly to the difficult conditions faced by higher education institutions and their students.

Policy Lessons at the Institutional Level

- Having a well-developed and experienced Teaching and Learning Services department can help facilitate the transition to online education and introduce innovative curricular and pedagogical practices.
- Professional networks within and beyond higher education institutions are important platforms that can support instructors who struggle to adapt to online education.
- Effective governance during the pandemic requires compassion from leaders, flexibility in management, and delegation of decision-making to empower all academic and administrative actors.
- Implementing a transparent communication strategy raises the level of awareness and ownership among the entire academic community during times of crisis.
- The crisis reinforces the need for more systematic risk analysis and implementation of preventive measures as part of strategic planning.
- To prepare for the post-pandemic era, leaders of colleges and universities should define a bold vision that accelerates the introduction of innovative approaches in the educational and economic models of their institutions.
- Effective support for vulnerable students requires comprehensive sets of measures that encompass their financial, technological, educational, and health needs.
- In the post-pandemic era, colleges and universities should embrace adult learners as an essential component of their target student population and offer appropriate programs to meet their learning needs.



Introduction



It is difficult to believe in the plagues when they fall on your head. — Albert Camus, *'The Plague'*

Background

In November 2002, the Severe Acute Respiratory Syndrome (SARS) epidemic started in China. Within months, it had spread to 29 countries/territories in Asia, Europe, North America, and South America. By the time the global outbreak was contained, the SARS virus had affected 8,096 people worldwide and caused the death of 774 people.

During the peak of the epidemic, schools and universities in the three most affected Asian countries/territories, China, Hong Kong, and Taiwan, were closed for a few months. To compensate for these closures, some universities took the initiative of keeping their students engaged by establishing or increasing the institution's online presence, which required an effective learning management system, adequate videoconference facilities, and instructors experienced with e-learning.

The scale of the ongoing COVID-19 pandemic is unprecedented in the 21st century. As of October 1, 2020, more than 34 million people had been infected and more than a million had died, worldwide. As country after country started to decree partial or total lockdowns in February/March 2020, the number of universities and colleges closing down their campus, interrupting face-to-face activities, and switching to e-learning soared on a daily basis, eventually affecting more than 200 million students globally. However, many if not most of these institutions were not well prepared for the sudden, disruptive move. A lot of scrambling, improvisation and continuous adaptation has taken place as administrators, academics and students struggled to implement online learning.

While the disruptions caused by the COVID-19 pandemic are affecting both rich and poor countries, disrupting the lives of all groups in society, the impact on students from vulnerable groups may be greater than for the average student population. In countries where a large proportion of students work, such as Brazil or Germany, the health emergency and the economic crisis has led to job and income loss, putting many students in a dire economic situation. In the United States, many low-income students have found it difficult to get

affordable accommodation off campus at short notice; many have struggled to access health care outside their college or university; they may not have the resources to continue living as students; and they may be less well prepared to be successful as online students, which could result in larger numbers of dropouts by the end of the academic year. International students stranded far from home have also faced economic and emotional hardship.

In low-income countries, students from under-represented groups have faced greater challenges due to more severe resource and capacity constraints. Furthermore, in countries with limited internet deployment and low broadband capacity, opportunities for online learning have been drastically constrained, especially in the rural areas. In addition to the digital gap challenges, colleges and universities in low-income nations have struggled to implement quality distance education programs for lack of experienced academics, adequate educational resources, and strong institutional capacity.

Objective

Against this background, the study offers a preliminary assessment of the impact of the COVID-19 pandemic on higher education throughout the world, with a special focus on the implications for equity. While it is premature to have a definite picture of the multiple effects and consequences of the crisis, as long as the combined health and economic emergency is ongoing, it is possible to analyze the main challenges that have arisen and get a sense of the range of responses from nations, institutions and individuals. The study seeks to evaluate, in particular, the special hardships encountered by students from under-represented groups and the effectiveness of policies and measures put in place to protect and support them at both the national and institutional levels.

Methodology

The research for this report occurred in three key phases. The first was a global scanning and analysis of policy documents, articles in specialized higher education

publications, and news pieces available between the early weeks of the pandemic (March 2020) and the beginning of the fall semester (September 2020). The second phase consisted of about thirty interviews conducted by the author with university leaders, faculty members and students in about twenty countries in all corners of the world. In the third and final phase, the author sought the expert advice of a dozen of higher education researchers and policymakers throughout the world.

The following analytical works have guided the preparation of this report:

- OECD study entitled *Tertiary Education for the Knowledge Society*, which defines equity in higher education, looks at the role of higher education in reducing disparities, and reviews country policy responses (OECD, 2007).
- *Opportunities for All? The Equity Challenge in Tertiary Education*, which proposes an analytical framework to measure the scope of inequalities in higher education, understand their determinants, and assess equity promotion measures (Salmi and Bassett, 2014).
- *Access and Completion for Underserved Students: International Perspectives*, which explores the range of equity promotion policies that can be observed at the national and institutional levels (Salmi and Sursock, 2018).
- Lumina study entitled *All Around the World—Higher Education Equity Policies Across the Globe*, which assesses equity promotion interventions and the conditions that best support them (Salmi, 2018).
- Lumina study entitled *Measuring the Impact of Equity Promotion Policies: Lessons from National and Institutional Case Studies*, which looks in depth at the experiences of Australia, Austria, Colombia, South Africa, and Vietnam (Salmi, 2019).

Outline of the Study

The report starts by examining the short-term effects and likely long-term consequences of the pandemic. It then analyzes measures taken at the national and institutional levels to mitigate the adverse impact of the COVID-19 pandemic. It finishes by identifying elements of transformation likely to be embraced by countries and higher education institutions as they enter the post-pandemic phase, and sets forth an agenda for further research, taking the findings of this study into consideration.

Main Messages

The main messages of the study are as follows:

- With the pandemic forcing the interruption of face-to-face education on campuses all over the world—possibility that very few colleges and universities had planned and prepared for—higher education institutions and students have experienced an unprecedented disruption and new challenges.
- Many institutions managed to switch to online education very rapidly and have done their best to provide continuity in teaching.
- It is a myth that COVID-19 has been a great equalizer. The digital gap and the lack of preparation of instructors have exacerbated disparities in access and success, and created social distress, especially among vulnerable students.
- In the medium to long term, COVID-19 is likely to have negative effects on the learning outcomes, graduation rates, employability, and job prospects of traditionally under-represented students and on the economic health of higher education institutions.
- Moving to online education has generated opportunities for significant transformation of the learning experience of students, whether online or on campus. Curricular and pedagogical practices could be reshaped to promote active, interactive, and experiential education, supported by aligned innovations in assessment and more flexible pathways and qualifications.
- Substantial changes in the economic model of higher education systems and institutions are needed to increase their resilience. Systems with higher proportions of public funding and provision are less vulnerable to health and economic crises. Strong IT infrastructure and solid student aid programs (grants and income-contingent loans) are indispensable to foster inclusion.
- Higher education institutions need to integrate risk analysis and contingency planning more systematically. Comprehensive support (financial, academic, and psychological) for vulnerable students and faculty is necessary to foster inclusion and reduce inequalities.
- COVID-19 has revealed the public good contribution of colleges and universities through relevant training, dissemination of scientific evidence, and direct help to government and local communities in combating the pandemic.

Impact of COVID-19



This storm will pass. But the choices we make now could change our lives for years to come. — Yuval Noah Harari

Measuring the impact of COVID-19 on higher education can be done in two steps. The immediate effects can be observed in real time with a certain degree of objectivity. The longer-term effects, by contrast, can only be assessed in a speculative way, based on trends and expectations.

Short-Term Effects and Reactions

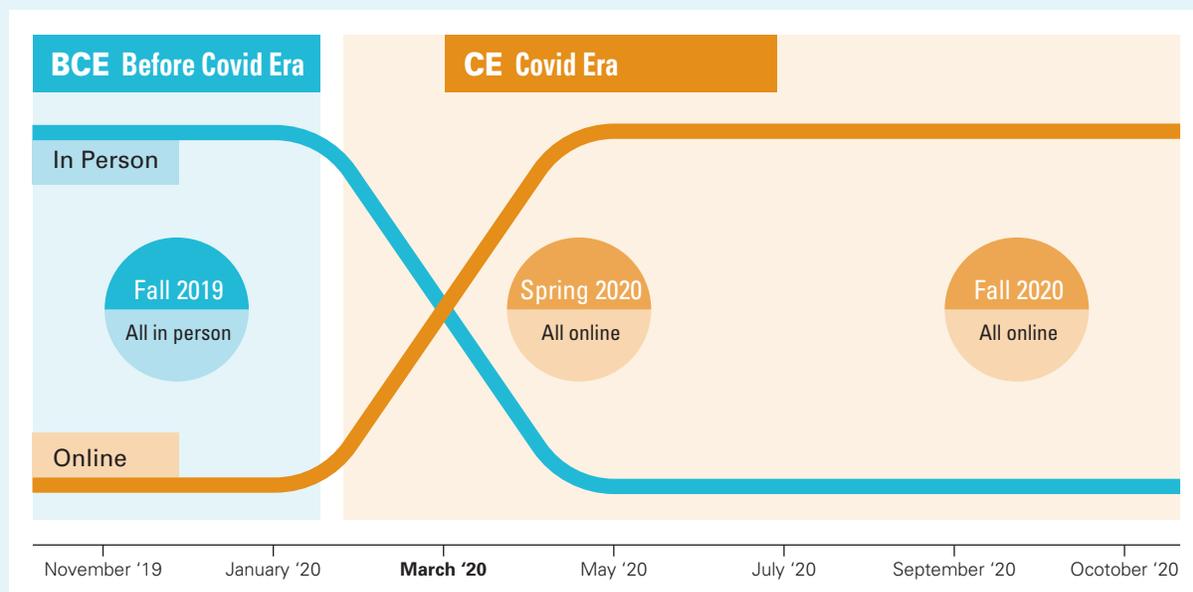
Closures and Transition to Online Education

The Chinese city of Wuhan went into total lockdown on January 23, 2020, followed within a few days by a handful of Southeast Asian countries and territories, notably Hong Kong, Mongolia, Taiwan, and Vietnam. Schools and universities in these countries closed down or remained closed after the Lunar Year Holiday. Seven days later, the World Health Organization (WHO)

declared a global health emergency because of the growing number of cases of “pneumonia of unknown cause,” later named COVID-19.

Despite repeated warnings from the WHO, few countries prepared for a possible pandemic during February 2020. When it became clear COVID-19 was spreading rapidly on a global scale, in early March, most governments finally showed alarm and began shutting down businesses, schools, and universities. Within a few weeks, about 20,000 higher education institutions had ceased normal operation, sent home close to 200 million students, and many of them switched to online classes after only a few days of preparation. In the words of Professor Anant Agarwal, Founder and CEO of edX, Harvard and MIT’s online learning initiative, “the world went from 1 percent or 2 percent or 3 percent learning online to 100 percent learning online. The whole world turned on a dime.” Figure 1 illustrates this radical change in the mode of operation of the higher education world.

Figure 1: Reversal in the balance between face-to-face and online teaching ¹



Source: edX

These campus closures certainly helped prevent the spread of the virus within higher education institutions. At the same time, they forced colleges and universities to start operating in unfamiliar ways, spend significant sums to rapidly shift their teaching activities online, and suspend all other activities indefinitely. Indeed, higher education institutions all over the world had to put most lab work and field visits for training and research on hold, as well as halt international travel and exchange programs.

These campus closures certainly helped prevent the spread of the virus within higher education institutions.

While the move to online education has been almost universally embraced, a few notable exceptions are worth mentioning. Argentina's flagship university, Universidad de Buenos Aires, is an example of an institution that decided to postpone classes and rearrange the academic calendar rather than switch to online classes, on the traditional assumption that only in-person courses could guarantee quality. Along the same lines, the National University of Science and Technology in Zimbabwe decided that it would remain closed until further notice.² In India, Hyderabad Central University opted not to implement virtual learning, aware that its students would have problems with internet connectivity. The Malaysian Ministry of Higher Education suspended online education together with on-campus activities.³ In Bangladesh, similarly, public universities delayed the switch to online education until June or July for lack of internet connection and capacity to teach virtually, even though all universities closed down in March. By contrast, private universities were able to implement the transition soon after the pandemic hit Bangladesh (Wadud, 2020).

The government ordered educational institutions to shut down on 16 March, initially until 31 March with several extensions. On 15 June, the education ministry extended the shutdown to 6 August. At least one academic semester was lost as the government and university administrations were late in taking the decision to shift to online academic activities. According to Bangladesh's University Grants Commission (UGC), as of June only seven out of 46 public

universities were running academic activities online. Academics say the pandemic could have a long-term impact on education as many universities could not start online classes before the first week of July because the country lacks good-quality internet access and infrastructure for online classes. Tawhida Jahan, chair of the department of communication disorders at the University of Dhaka, said it required a big adjustment for the higher education system to run online academic activities effectively. "The reality is Bangladesh is not ready for online classes" she said (Wadoud, 2020)

Brazil is another country that has encountered significant challenges in the transition to online education. In the absence of clear government guidance—reflecting President Bolsonaro's dismissal of COVID-19 as a mere flu—university presidents had to decide individually to close their campuses and move to virtual education.

Brazilian universities are struggling to provide online teaching as they battle budget cuts and a government in denial about the scale of the coronavirus pandemic. According to the Ministry of Education, 38 of Brazil's 69 state universities have suspended their activities entirely, while 21 are teaching remotely and 12 are partially open. The ministry estimates that, of the more than 1.1 million students attending federal institutions, about half have had their learning suspended. There was no nationwide plan to support the transition, and states had been left to make their own decisions (McKie, 2020b).

Similarly, in South Korea, the lack of government guidance left universities and students in a limbo at the beginning of the pandemic. While the majority of universities made a clear decision to move online for the duration of the semester, a few institutions, notably Myongji University and Yonsei University, announced that the move to online education would last for just a few weeks, thus forcing their students to stay in Seoul instead of going back home and then leaving them in limbo (Chai, 2020b).

In a few nations, the students themselves have resisted the digital transition. In Tunisia, for instance, the main student union denounced the government's decision to adopt online education during the COVID-19 crisis. The union labeled the move a discriminatory measure and called for a boycott of online platforms.⁴ In Chile, similarly, students at the country's main public institution (Universidad de Chile) and at the private Universidad

San Sebastian initiated online strikes. Students at the Colombian Universidad Santander called upon the Ministry of Education to suspend online education, complaining that they had connection problems and were penalized by the professors.⁵ Some of the professors supported their request. In Kenya, law students went to court to challenge the decision of universities to move classes and examinations online on the grounds that they had not been consulted (Kigotho, 2020). Student unions in Ghana, South Africa and Zimbabwe have asked the government to stop the move to online education, arguing that it was elitist and out of reach for poor students without proper internet access (Mukeredzi *et al.*, 2020).

In the United Kingdom, more than 300,000 students signed a petition demanding refunds of their tuition payments, essentially claiming that online instruction was not what they had paid for.⁶ Similarly, students

enrolled at Drexel University, the University of Miami and the University of Colorado in the United States have filed a suit to get tuition refunds.⁷ The South Korean Ministry of Education and universities have played “back and forth” after the student unions demanded tuition decreases, the government claiming that it is up to the universities to make a decision, and the latter referring back to the Ministry’s responsibilities (Chung, 2020).

Even though many if not most higher education institutions tried very hard to make online education work, the degree of readiness for the rapid transition to online teaching and learning was highly unequal across countries and institutions. Table 1 attempts to capture, in a sketchy manner, substantial differences across groups of countries in terms of the key factors determining an institution’s ability to adapt to the pandemic and operate effectively in a virtual mode.

Table 1: Readiness of institutions to move online

Factors of readiness	High-income countries	Middle-income countries	Low-income countries
Business Continuity Plan	■ ■	■	■
Emergency Management Office	■ ■	■	■
Power Supply	■ ■ ■ ■	■ ■ ■ ■	■ ■
Broadband Internet	■ ■ ■ ■	■ ■ ■	■ ■
Learning Management System	■ ■ ■ ■	■ ■ ■	■ ■
Videoconferencing	■ ■	■ ■	■
Digital Content Resources	■ ■	■	■
Teaching and Learning Unit	■ ■ ■	■ ■	■
Trained Instructors	■ ■	■ ■	■
Cybersecurity	■ ■	■ ■	■

■ ■ ■ ■ fully available

■ ■ ■ generally available

■ ■ not always available

■ rarely available

Table 1 illustrates two important facts. First, very few universities and colleges anywhere in the world were used to doing risk analysis and contingency planning on a regular basis, even though the 2002-03 SARS epidemic had forced a number of Asian universities to close down back then (Box 1).

Box 1: Emergency Planning in Singapore and California

Tan Eng Chye, president of the National University of Singapore (NUS), told University World News: “In 2003, SARS hit us quite badly. Since that time, we have had a business continuity plan. Part of that plan is to look at possible scenarios. A pandemic is one of them.” Others include building collapse, a major fire or terrorist attack. “For each scenario we have a rough plan,” he explained.

Since that time, NUS has provided everyone on campus with a thermometer to measure fever in case of epidemic. All new faculty members must undergo compulsory training to learn how to teach online.

Cynthia Larive, chancellor of the University of California at Santa Cruz in the United States, noted: “We had an emergency management structure in place and that was very useful.” It includes an operations center for the university and how to manage communications, including coordination with the city and county.

“With an earthquake or fire, you get through it very rapidly. You do an assessment, then plan for how your recovery can begin. But this pandemic is a different kind of situation. We are in it for a much longer period. In some ways it is less devastating, but it is hard to anticipate all the impacts and understand when it will end.”

Source: Sharma, 2020; Smith, 2020.

Exceptions are found in countries with frequent earthquakes and tsunamis such as Japan, nations regularly hit by typhoons like the Philippines, fire-prone regions such as California, or places like Christchurch (New Zealand) or Louisiana (USA) that have suffered from natural disasters (Sharma, 2020). In countries affected by significant social protests in recent years, for example

Chile in fall 2019 and South Africa during the #Feesmustfall protests in 2016-2017, some universities had experimented with online learning. Because of the blockade suffered since, higher education institutions in Qatar had been building their virtual education capacity.

Notwithstanding these outliers, the large majority of higher education institutions throughout the world came into the pandemic without an operational continuity plan, especially in the poorer parts of the planet.

African universities had been ‘caught unawares’ by the shutdowns and the subsequent shift to online learning necessitated by the outbreak of the COVID-19 pandemic... Few had fully developed electronic learning systems and platforms such as Canvas and Google Classroom to implement high quality digital learning environments (Dell, 2020).

The 2020 UMultirank results provide useful information on the degree of online readiness of universities, taking into consideration that the large majority of universities supplying data come from industrial countries. About 60 percent of the participating universities had made provisions for online education in their strategic plan prior to COVID-19, but less than a third were offering full online courses. The proportion was much lower in disciplines like business administration (12 percent), economics (7 percent) and engineering (3 percent). According to Frans van Vught, UMultirank co-director:

Universities all over the world appear to be caught by surprise by the COVID-19 crisis. Only few institutions appear to have had a risk management strategy in place that would allow them to respond to a pandemic. Particularly the capacity to offer online programs and support appears to be a key strategic response. This capacity was not broadly available when the crisis hit.⁸

Similarly, Bloomsburg Business found that only 30 percent of academics in the United States had taught an online course before the pandemic.⁹

Second, universities and colleges in developing countries have faced serious IT infrastructure and internet access difficulties during the transition. To begin with, 24-hour electricity supply is still a challenge in many Sub-Saharan African countries, war-affected countries in the Middle East, parts of South Asia, and rural areas in Latin American nations, impacting both higher education institutions and households. In Afghanistan, for

example, “access to online learning platforms is also restricted, either by lack of constant electricity supply in some areas or internet bandwidth issues, with delivery of courses via television channels or mobile phones a more realistic option” (Khan *et al.*, 2020).

Next comes the challenge of broadband availability and access. While comprehensive statistics about the broadband capacity of universities across and within countries do not exist, Figure 2 gives a clear idea of the large disparities across continents and country groupings by showing the proportion of households connected to the internet. Another way of measuring the level of

inequalities is to compare the average broadband internet speed across countries. Table 2 shows the results for the top 10 and bottom 10 countries in the world, among the 207 nations and territories for which data are available. The data clearly reveal the acute digital gap across nations. The five countries with the fastest internet have download speeds around 125 times faster than the five slowest. Yet, 141 countries have average speeds below 10Mbps, a speed deemed to be the minimum required by a typical household. Furthermore, the digital gap can be expected to be even more pronounced *within* countries, across geographical areas and social groups.

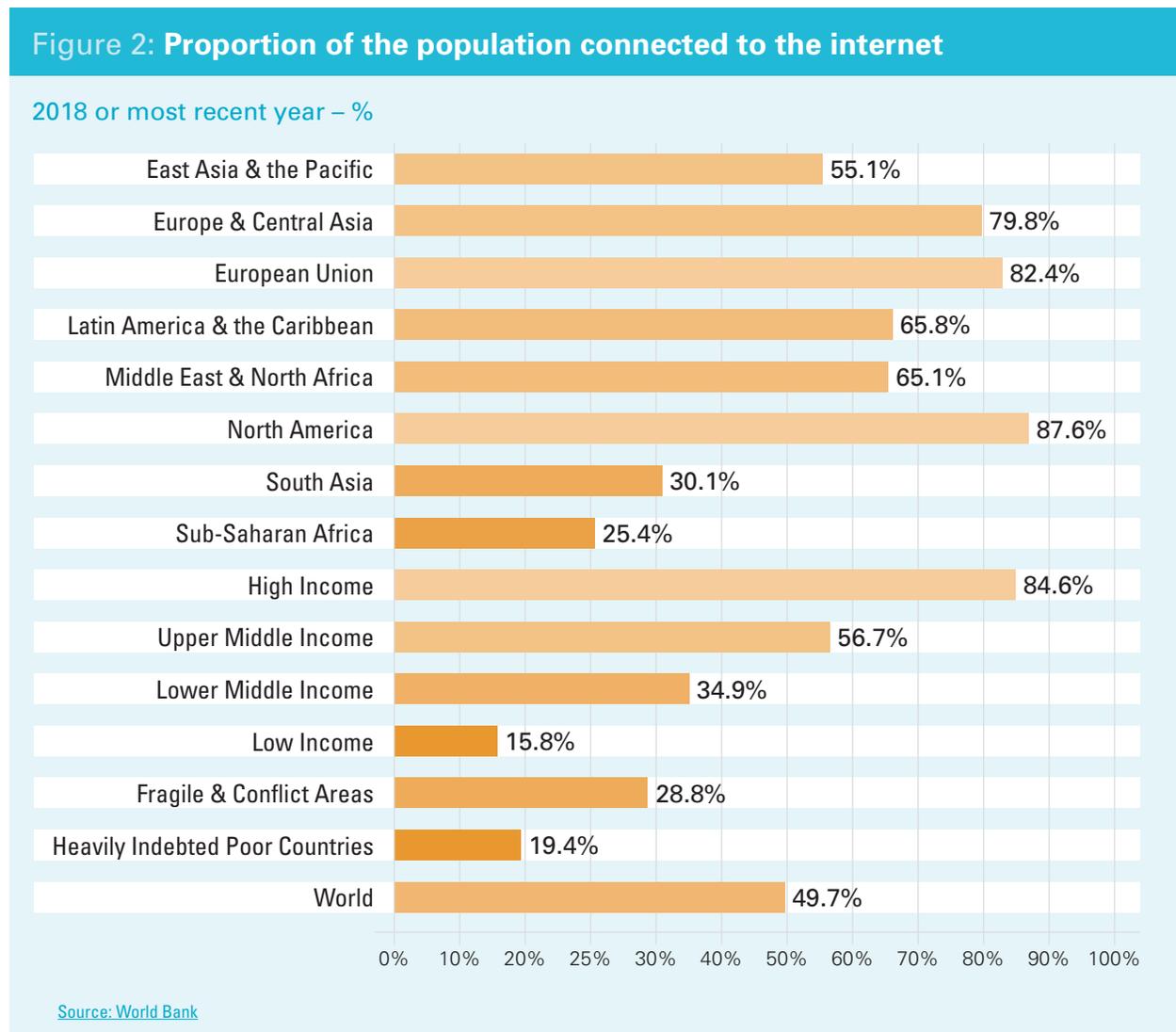


Table 2: Disparities in internet speed (Top 10 and Bottom 10 countries)

Countries / Territories	Rank	Internet Speed (MBPS)	Index Value
Top 10 Countries			
Taiwan	1	85.02	100
Singapore	2	70.86	83.3
Jersey (Bailiwick of)	3	67.46	79.3
Sweden	4	55.18	64.9
Denmark	5	49.19	57.9
Japan	6	42.77	50.3
Luxembourg	7	41.69	49.0
Netherlands	8	40.21	47.3
Switzerland	9	38.85	45.7
San Marino	10	38.73	45.6
Bottom 10 Countries			
Taiwan	198	0.88	1.0
Singapore	199	0.87	1.0
Jersey (Bailiwick of)	200	0.86	1.0
Sweden	201	0.80	0.9
Denmark	202	0.71	0.8
Japan	203	0.70	0.8
Luxembourg	204	0.59	0.7
Netherlands	205	0.51	0.6
Switzerland	206	0.45	0.5
San Marino	207	0.38	0.4

Source: [Internet comparison site Cable](#)

The third enabling factor facilitating the transition to online teaching is having a Learning Management System (LMS) in place that all or most faculty members routinely use. Anecdotal evidence indicates that most higher education institutions in high-income countries tend to have an LMS, although there is a great variation

in the proportion of instructors using them on a regular basis and the extent to which the LMS in place is up to date. The situation is different in transitioning and developing economies, where few teachers are trained to use them. In Kazakhstan, for example, few universities had adequate LMS platforms to support the switch to online

education, and few trained instructors with any online education experience (Bayetova and Karsakbayeva, 2020).

Videoconferencing capacity and access to digital resources are two additional categories of resources that universities and colleges need to implement online full scale. Interviews with institutional leaders indicate that the universities and colleges that had a well-functioning Teaching and Learning unit prior to COVID-19 were in a better position to make the transition. Finally, while a few institutions here and there had provided mandatory training to all their faculty members in past years, the large majority of instructors were not prepared for such a change.

The move to online teaching and learning has also exposed many higher education institutions to increased cyber assaults. From benign intrusions into Zoom sessions to phishing attempts directed at students and professors to more serious data thefts and ransomware attacks, there has been a spike of cyber incidents as thousands of universities and colleges have scaled up their digital activities. Hackers allegedly working for the Russian government even tried to steal the results of COVID-19 vaccine research at Oxford University and Imperial (Morris, 2020). CollegeCloud-based email

management firm Mimecast reported a 33 percent rise in cyber-attacks across the world between January and end of March 2020. KnowBe4, a security awareness training firm based in South Africa reported a 600 percent increase in phishing email attacks linked to COVID-19 in the first three months of 2020 (Sawahel, 2020). Several British universities were under ransomware attacks at the beginning of the fall semester. Hackers managed to steal the salaries of academic and administrative staff at three Swiss universities.¹⁰

By nature, higher education institutions are more vulnerable than other types of organizations because they operate complex networks that are open to large numbers of students and faculty members and often rely on platforms from third-party vendors that make them more exposed. These networks often operate without adequate protection for lack of awareness about cyberthreats and/or insufficient resources to hire a cybersecurity firm and move their databases to the cloud.

It should be noted, finally, that in all countries—rich or poor—, elite institutions tend to be much better prepared, equipped and resourced to face an emergency like COVID-19 than the majority of colleges and universities.





If you don't have a room to call your own, a space to work, internet — you can't be a student taking full classes trying to do homework outside of Starbucks. — Anthony Abraham Jack, assistant professor, Harvard Graduate School of Education

Impact on Students

The commotion and confusion brought about by the abrupt closure of campuses and the rapid switch to on-line education have disrupted the lives of students all over the world. Table 3, based on interviews with key informants, attempts to capture the degree to which the COVID-19 crisis has affected vulnerable students, depending on the economic level of the countries they live in. Vulnerable students refer to students from traditionally under-represented groups, such as low-income students, girls, members of minority groups, and special needs students.

While the disruptions caused by the pandemic affect both rich and poor countries and upend the lives of every societal group, students from vulnerable groups have been hit especially hard. In wealthy societies such as the United States, where most residence halls were

shut down—often suddenly—many first-generation students and students from low-income families have faced major difficulties. They had problems finding off-campus housing on short notice, lost access to campus-based health care, struggled to pay unexpected living expenses, and felt unprepared for a sudden shift to online studies. In this context, community college students, who are more likely to be people of color, older, have lower family incomes, and care for dependents, are much more vulnerable than those attending four-year institutions. The title of an April 2020 New York Times article, “College Made Them Feel Equal. The Virus Exposed How Unequal Their Lives Are,” captured very well how the COVID-19 crisis has laid bare the profound disparities that college life is supposed to compensate for.

After Haverford College shut down and evicted most students from the dormitories as the coronavirus spread through Pennsylvania, the syllabus was revised

Table 3: Readiness of students to move online

Factors of readiness	High-income countries	Middle-income countries	Low-income countries
Financial difficulties to continue living as a student	■	■ ■	■ ■ ■
Lack of device and internet connection	■ ■	■ ■	■ ■ ■
Academic difficulties	■	■ ■	■ ■
Emotional distress	■ ■	■ ■	■ ■
Risk of dropping out	■	■ ■	■ ■

Seriously challenging for: ■ ■ ■ most students ■ ■ some students ■ a few students

and the students reconvened on a videoconferencing app. But as each logged in, not everyone's new reality looked the same. One student sat at a vacation home on the coast of Maine. Another struggled to keep her mother's Puerto Rican food truck running while meat vanished from Florida grocery shelves. Another student's mother in Russia couldn't afford the plane ticket to bring her daughter home.

While the outbreak of the coronavirus and the accompanying economic devastation have put America's class divide on full display, college was meant to be different. For decades, small liberal arts schools like Haverford prided themselves on being the "great equalizer," offering pedigrees not just to the scions of East Coast elites but also to the children of first-generation immigrants. Scholarships filled in for family money. Students ate the same cafeteria food in the morning and bunked in the same creaky beds at night. No longer — at least not while the virus spreads through the country. "It's as though you had a front-row view on American inequality and the ways in which it was disguised and papered over," said Anita Isaacs, the course's professor who has taught political science at Haverford since 1988 (Casey, 2020).

The current crisis has made it impossible not to recognize the historical, geospatial, economic inequalities of the country and the world students live in.

Even in high-income countries, internet connection has been a challenge for a substantial proportion of the population. In Australia and the United States, for instance, 13 percent and 6 percent of households do not have a high-speed connection, according to the World Economic Forum. In the latter country, one-third of low-income people are not connected. In France, a survey carried out in June 2020 found that at least 50,000 students had dropped out for lack of connection, equivalent to 4 percent of the total student population (Haberbush, 2020). Minority students have encountered similar difficulties in Canada. ... students will need appropriate digital devices, a proper study space, and a lot of quiet time. Sadly, this

attaches some serious socio-economic conditions to post-secondary participation. Many First Nations and rural communities do not have proper and reliable internet connections. Students in poor families often do not have the resources necessary for a good learning environment, despite an often extraordinary personal and family commitment to post-secondary study. If proper supports are not in place, there will be an even stronger than normal outcome bias in favor of students from high-income families (Coates and Holroyd, 2020).

In poorer countries, students from disadvantaged groups face even greater difficulties. In developing nations with limited internet access and low broadband capacity, opportunities for online learning are likely to be drastically constrained, especially in rural areas. Many students from low-income households—sometimes even faculty members—lack laptops or tablet computers and live in crowded spaces. In addition to digital-divide challenges, colleges and universities in poor nations will likely struggle to rapidly launch quality distance learning programs. Many lack experienced instructional designers, sufficient educational resources, an adequate grasp of the specifics and nuances of online education, and strong institutional capacity to deliver it. The African University Association already has signaled that, among the 700 universities operating in Sub-Saharan Africa, very few were well prepared and sufficiently equipped to deliver their programs online.¹¹ A survey conducted by the Association of Commonwealth Universities in May 2020 revealed that, among the 259 respondents (academics and students) from 33 countries, 55 percent indicated that they did not have access to broadband. As expected, the probability of having access to broadband was proportional to the level of income (ACU, 2020).

Reports from South Africa show how COVID-19 has been the ultimate revelator of existing disparities.

The current crisis has made it impossible not to recognize the historical, geospatial, economic inequalities of the country and the world students live in. In a certain sense, the pandemic, and the pivoting to online made visible the invisible or ignored manifestations and mechanisms of inequality... The lockdown has forced us to look much closer to where our students are - where they are positioned - what resources they have - what opportunities to engage in teaching and learning. And we can't unsee these differences - whether on or off-campus... the pandemic and [switch

to online teaching] have revealed many of the causal mechanisms perpetuating inequality such as allowing students who did not have sustainable and affordable access to further fall behind (distantiation) and [be] excluded (Czerniewicz *et al.*, 2020).

Disparities are of course much more acute in the poorest countries of the planet. Internet access is a challenge for many Palestinian students.

One lecturer at Al-Quds University who asked that her name be withheld was concerned about students' access. "With the poor internet connection most of my students have, I cannot teach in an effective way," the lecturer said. "Many students did not show up in my e-classes. They sent me messages saying that they could not log in due to several reasons, mainly the internet connections" (Jawabreh, 2020a).

UNESCO'S Regional Office for Latin America and the Caribbean estimates that about 30 percent of students in the region were unable to participate in online education for lack of computer and/or adequate internet connection in a region where only half of the households are connected.¹²

In Brazil, academics told *Times Higher Education* that the shift to online tuition had been hampered by lack of access to computer and internet connections among the country's poorest students. At the University of São Paulo, the country's flagship institution, about 30 percent of the students are from low-income families. Some have problems with adequate space for studying, and there are many reports of anxiety and other mental health issues (McKie, 2020b).

In Colombia, "Karol, the aspiring nurse, was trying her best to keep up with classes, but she couldn't log into the school website without the internet, so a friend was downloading the assignments and texting them to her. She then completed them by hand, took pictures and texted them back. But it was hard, and she worried she was falling behind" (Turkewitz and Villamine, 2020).

In Sub-Saharan Africa, people living in rural areas are 58 percent less likely to have access to the internet. The gender gap also intersects with the digital gap, especially in Africa and South Asia. Women in Sub-Saharan Africa are 41 percent less likely to use mobile internet than men; in South Asia the probability is 58 percent (Broadband Commission, 2019).

The small public university, like many others in Africa, is challenged by a number of issues militating against its ability to switch to online learning easily: its students lack universal access to laptops and internet data; furthermore, the campus itself suffers from frequent disruptions to its electricity supply; and students, most of whom have been sent home to rural areas, have limited access to the internet and do not enjoy environments conducive to learning (Dell, 2020).

Disparities are of course much more acute in the poorest countries of the planet. Internet access is a challenge for many Palestinian students.

The situation has also been difficult for students in South Asia, as testimonies from Bangladesh reveal (Box 2). A recent assessment of the impact of COVID-19 on Indian universities concludes that "social disconnectedness in higher education as an indicator of the continuity of deep-rooted social division rather than a mere aberration. It also indicates how educational inequalities are being reproduced during the pandemic, sometimes with tragic human consequences (Malish, 2020). A survey carried out by the University of Hyderabad in India revealed that 63 percent of the students could not access online classes regularly. "Forty percent reported unreliable connectivity as being a major deterrent while 30 percent cited the cost of data. Significantly, 10 percent reported uncertain electricity supply as a concern (Jahangeer, 2020).

In the Indian state of Kerala, a female Dalit student committed suicide by fire on June 1 because she was unable to attend online classes (Outlook, 2020). This tragedy reflected the connectivity challenges faced by many Indian students, which are likely to accentuate disparities.

Teachers describe them both as "brilliant" students, but ever since classes moved online, they have found themselves on opposite sides of India's digital divide. Ananya, who lives in an urban area, has wi-fi at home, and says she is able to log in to her classes and follow them easily. But for Mahima, who lives in a village, it has been a frustrating experience. For one, she has no home wi-fi. Instead she relies on her mobile phone's

4G signal, a common source of internet across rural and small-town India. But the phone signal is strongest on the terrace of her house, so Mahima often has no choice but to study there in the searing heat. Even then, she says, she may or may not be able to join the

Box 2: Poor Students Unable to Study Online in Bangladesh

Public university students have been hit hard by the crisis, many of them being from poor families. “Students will not be able to complete courses on time and they will struggle to get jobs,” indicated Afsan Chowdhury, a professor at the private BRAC University in Dhaka, adding that “the most disturbing thing is that it has exposed a digital divide in the country. Students who cannot attend classes will feel deprived and this will have an impact on them psychologically.” Students said they face serious problems accessing classes, as they do not get uninterrupted internet connections at their homes. Some students do not have smartphones or other electronic devices to access online classes.

According to the Bangladesh Telecommunication Regulatory Commission, only 4.84 million people have a broadband connection, out of a total population of 160 million people. After a survey of 19,000 students was conducted in May by the University Grants Commission, the UGC chairman, Kazi Shahidullah, said it found that 13 percent of respondents did not have smartphones for online classes. Goutam Roy, an assistant professor at the Institute of Education and Research at Rajshahi University in Northwestern Bangladesh, said many public university students come from poor families, mainly from rural areas, and purchasing internet packages from mobile companies is expensive.

Students said they are facing uncertainty about completing their courses and entering the job market. University of Dhaka student Sanjida Akher said it costs BDT800 (US\$9.40) to BDT1,000 (US\$11.80) per month to access classes using mobile phone data, a significant amount for her. “I just don’t know how I can pass the exams,” she said, adding that she is in her final year and planning to enter the job market next year. This will not be possible now.

Source: Wadud, 2020.

classes online. “At times I miss lessons completely. I can’t watch online videos sent by the teacher. Downloading is a big problem. We only get electricity a few hours a day, so keeping the phone charged is also an issue,” she says. At times I feel like crying because of the backlog. I am so behind the syllabus.” The government has been touting online classes as a viable alternative, but unequal and patchy access to the internet has meant the experience is vastly different depending on location and household income (BBC, 2020a).

A large-scale survey in Sri Lanka, a country with limited experience in online education until the pandemic, has revealed widespread connectivity difficulties for both students and instructors.

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 percent of students, 68 percent of faculty in state institutions, and 76 percent of faculty in nonstate institutions faced connection issues during online teaching and learning... 55 percent of students in state and 66 percent in nonstate higher education institutions said they owned a laptop (Hayashi *et al.*, 2020).

In India, the country’s top institutions (Indian Institutes of Technology, National Institutes of Technology) have taken advantage of the COVID-19 pandemic to defer the implementation of new affirmative action measures that would have allowed students from disadvantaged social groups to enter these exclusive institutions (Niaz, 2020b).

Studying online under lockdown conditions has taken a special toll on women. Researchers have coined the term “shadow pandemic” to refer to increases in domestic and sexual violence (Mutavati, Zaman, & Olajide, 2020). The Global Partnership for Education (2020) advises that “the impact of COVID-19 on adolescent girls is likely to surpass that caused by the Ebola epidemic.” Beyond aggravated violence, COVID-19 has had a disproportionately high impact on the daily lives of women, especially mothers and caregivers. Women in professional careers who have children have been most affected as they had to take on the additional role of teacher.

While detailed information on how students with special needs have fared during the pandemic is not available, anecdotal evidence suggests that few higher education institutions were able to make the necessary adjustments to facilitate their access to online education. In Kazakhstan,

for example, a survey during the pandemic revealed the absolute lack of study materials and computer software adapted for use by people with sensory impairments, such as physical disability, sight issues or hearing loss (Bayetova, 2020). Blind students in Cambodia have complained about the lack of books in braille (Bunthoern, 2020). An increase in lawsuits by students with disabilities against colleges and universities in the United States reflects the difficulties encountered by this group, which represents close to a fifth of all students, as their institutions moved to online teaching.

In Australia, where foreign students contribute more than US\$21 billion every year, more than 500,000 international students have been left stranded.

A lack of descriptive alternative text can make it impossible for blind students to know what information the images on a worksheet are supposed to convey. Faculty rely heavily on standard PDF files, which aren't readable by the technology vision impaired students use. While it's possible to make these documents accessible, professors don't necessarily know how to do so without training. And the list goes on. Materials for class can include redundant or empty links that trip up students' assistive devices and make the work more confusing for them to navigate. Sometimes, even a school's colors can be an obstacle if the color contrast on a university's website makes the text harder to read (Weissman, 2020).

It should also be noted that the COVID-19 pandemic has made large numbers of international students especially vulnerable, creating serious emotional stress and anxiety. Many of them have found themselves stranded far away from their home country, facing economic and emotional hardship. Furthermore, because the pandemic started in China, Asian students have often been stigmatized and have faced a hostile environment in several countries, notably in Europe, especially in the United Kingdom, and in the United States (Andrew, 2020). At the same time, African students in China have also been the victims of racist behaviors. In Northern Cyprus, similarly, African students have been subjected to derogatory

statements from the Prime Minister who is eager to use the pandemic crisis as an opportunity to "clean them out," even though the government and universities have actively sought to attract foreign students in past years (Ruwoko, 2020). Racial profiling of African students has been reported in nations as diverse as China, Cuba, and India. In the latter country, foreign students have been accused of bringing COVID-19 into the country.

Leon Lidigu, a final-year mass communication and journalism student from Kenya studying at Pacific University in Udaipur City, Rajasthan state recounted that he entered a mini-supermarket, prompting everyone, including the shop owners, to run away from him shouting "corona, corona." Lidigu said he is housing five other African students in his apartment as they were chased out of their lodgings... Joseph Ogbolu, a 25-year-old public health master's student from Nigeria attending Apex University in Jaipur city reported that the Indian police were also targeting African students. "The police too are profiling us just like the locals. They ask us questions about our origins and why we are in the country all the time," he said (Ligami, 2020).

Suffering from food shortages, the 1,200 South African students enrolled in medical education in Cuba as part of the Nelson Mandela-Fidel Castro program have appealed to their government to get financial assistance (Citi Press, 2020). In Australia, where foreign students contribute more than US\$21 billion every year, more than 500,000 international students have been left stranded. Without government financial help, they are struggling to survive.

Daniela Maza is a foreign student who has lived in Australia for the past four years, studying for a degree in Brisbane. Like thousands of other students around the country, she suddenly found herself facing significant financial distress in the middle of the coronavirus pandemic. "If, one month ago, someone would have told me 'in a month's time you are going to be struggling to pay your bills, food, and rent,' I wouldn't believe it." The 24-year-old from El Salvador said many students were trying to pool their food and accommodations after being stood down from casual jobs. That fact alone raises questions why Australian governments have not responded to students' needs (Maslen, 2020b).

In the United States, the Trump administration's early July decision to deny a visa to students enrolled in online

programs—fortunately rescinded after lawsuits by major universities—was an additional source of anxiety for hundreds of thousands of prospective and returning students.

This picture of international students would not be complete without mentioning the plight of the least visible among international students, namely refugee students living in refugee camps or in precarious accommodations outside the camps. As happened in Kenya, the occupants of refugee camps have often been left to fend for themselves during the pandemic for fear of contagion (O’Keefe, 2020). While little information is available, it is likely that, as a result of COVID-19, refugee students everywhere have suffered more severe disruptions to their living conditions and study plans than regular students.

In the United States, part-time instructors who have no health insurance and are not eligible for unemployment compensation have felt particularly vulnerable (Douglas-Gabriel, 2020).

The coronavirus has thrown the entire higher education industry into uncertainty, but it’s been especially cruel to the thousands of part-time professors undergirding New England’s colleges and universities. The effect has been to widen the gap between the haves and have-nots in higher education: While many tenure-track professors received pandemic-related extensions for their research, many adjuncts simply watched their jobs evaporate (Krantz, 2020).

Finally, it is worth mentioning that, in some countries, academics and student activists have been targeted by political and university authorities, using COVID-19 as a pretext to restrict freedom of expression. The Scholars at Risk Network has identified several cases, notably in China, India, and Turkey.¹³ In India, student activists have also been targeted under the pretext of the COVID-19 health emergency (Niazi, 2020a).



Assessment and Exams in Transition

Very soon after moving to online teaching and learning, higher education institutions had to start making decisions about assessment, examinations, and graduation. Many have struggled with difficult choices about how to assess student learning remotely, whether to postpone or cancel final exams, and on which basis to select and recruit students for the next academic year, especially in the countries where the national end-of-high school exams that usually determine access to university have been scratched. Some universities canceled graduation

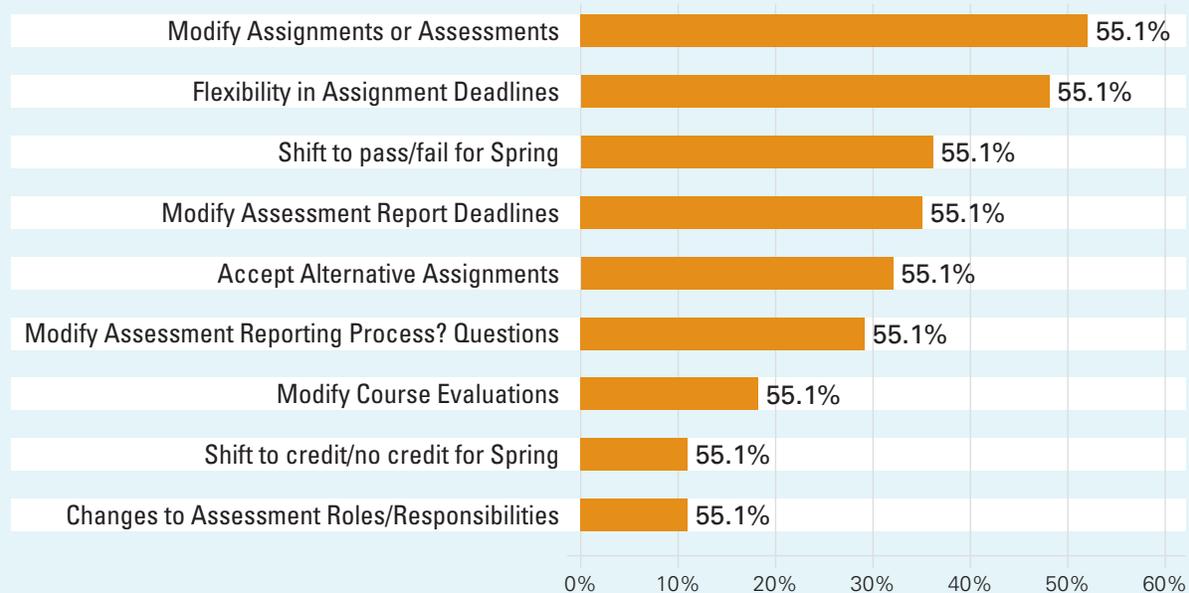
ceremonies altogether, a few advanced the commencement day, and many held virtual events, sometimes with avatars as the Indian Institute of Technology Bombay did. Upon learning in March that their school would close within a few days, students at Olin College of Engineering in Massachusetts took the initiative of organizing a “faux-mencement” with full support and participation of the administration.¹⁴

Table 4 shows the range of approaches that universities have adopted during the pandemic to proceed with assessment and examinations.

Table 4: Assessment and exams under COVID-19 ¹⁴

Activities	Approaches	Implications
Continuous Assessment	Papers submitted online	Personalized feedback
	Modified assignments	Adapted to online learning
	Alternative assignments	Helpful to reduce anxiety
	Flexible deadlines	Easier for students
	Automatic pass	Helpful to reduce anxiety No feedback to students
	No grade pass/fail	Helpful to reduce anxiety
	Credit / no credit	Helpful to reduce anxiety
Exams	Proctored in-person exams	Need for additional space Health risk
	Timed online exams	Connection problems Risk of cheating
	Proctored online exams	Connection problems
	Open internet exams	Less stress for students Measures problem-solving skills
	Cancellation / postponement	Helpful to maintain equitable conditions, but creates uncertainty
Graduation	Automatic graduation based on previous grades	Less stress for students
Section of Incoming Students	Consideration of grades during last year(s) of high school	Less stress for students
	Reliance on essays, motivation letters, and record of extra-curricular activities	Bias in favor of students from well-off families

Figure 3: Modifications in assessment methods or deadlines



Source: Jankowski, 2020, p. 6

While some institutions opted for canceling the spring semester or postponing exams (3 percent in the United States, all institutions in India at the request of the University Grants Commission), with the optimistic view that the pandemic would go away after a few months, a high proportion of colleges and universities in North America have relaxed examination deadlines and modified assessment systems. Figure 3 shows the results of a survey conducted in June 2020 by the National Institute for Learning Outcomes Assessment (NILOA) to evaluate changes in assessment in US colleges and universities during the spring term. Just above half the institutions that responded (52 percent) reported modifications, and an equal proportion indicated that they adopted three to four changes.

More than a third of institutions tried to relieve stress among students worried about their GPA during the transition by giving simple pass/fail or satisfactory/unsatisfactory mentions upon completion of courses, without a grade or percentile result. But this has not been a generalized practice. Many colleges and universities have continued with the regular grading under the pressure of students eager to use their GPA for scholarship and graduate school applications or concerned about the transferability of academic credits to other institutions. At

Carnegie Mellon University and MIT, students were graded as usual, but could exercise the pass/fail option within seven days of receiving their grades. Dalhousie University in Canada adopted what they called a student-centered approach, which basically allowed professors to be flexible and review the final grades of students who struggled with the technology (Burke, 2020). Many universities in the United Kingdom have adopted “no detriment” policies that guarantee students a final course result at least equal to their average performance before the pandemic (OECD, 2020).

The NILOA survey offers useful data from an equity perspective. The comparison between inclusive and selective institutions reveals that “inclusive institutions were more likely than selective institutions to provide flexibility in assignment deadlines, while selective institutions were more likely than inclusive institutions to shift to pass/fail or credit/no credit, modify assignments, accept alternative assignments, and modify assessment reporting processes” (Jankowski, 2020, p. 7). Similar results can be seen when comparing community colleges and research universities. While the former institutions were the most likely to be flexible in submission deadlines for assignments, the latter were the most open to alternative assignments.

The survey also showed two worrisome trends. First it identified increased levels of stress and mental health issues as a result. Second, many respondents expressed their concern about a growing divide between teaching and learning on the one hand, and assessment on the other hand. This is due to the focus of ongoing professional development programs on the transition to online teaching and learning without including the need for aligning assessment approaches. Anecdotal evidence also suggests that individual instructors have not always adhered to the flexible policies recommended by their institutions. At the University of Cincinnati, for example, cases of punitive assessment against students who caught the coronavirus have been reported.¹⁵

By contrast, in most parts of the world, higher education institutions have not changed their assessment modalities and deadlines much beyond giving a greater weight to continuous assessment, with the exception of a few elite universities here and there. Universities have either tried to offer safer facilities for in-person exams—Germany universities started using sports halls for social distancing—or transferred the regular exams online. Oftentimes, the lack of flexibility in assessment practices may have been partly harsh on the most vulnerable students, who are more likely to study under difficult conditions during the pandemic, as revealed by these telling testimonies from students at the Universidad Industrial de Santander, one of the foremost public universities in Colombia.

We had a partial exam last week. My internet broke down and I could not finish the exam. I asked the professor to give me an alternative form of assessment, but he responded that it was not possible, that it was not his fault if my internet did not function properly, and that I would just get a bad grade. The professor sent a message to all the students warning them that “in real work life, you will have to fulfill your obligations whatever happens.” We are getting these kinds of responses from our professors all the time. At the end of the day, those of us who have no access to the internet or an unstable connection are being punished (El Tiempo, 2020).

Even at world-renowned, elitist universities like Oxford and Imperial College in the United Kingdom, students complained about the flawed nature of online exams, calling for alternative forms of assessments, such as a portfolio of essays or postponing deadlines until after the pandemic. A petition signed by 1,200 Oxford students warned about unequal conditions at home likely to adversely affect the outcome of online exams.

“Some students may not have a quiet environment in their homes to take a timed online exam and would prefer take-home exams. Yet others may need to take care of their ailing family members and have to delay their exams entirely” (Tapper *et al.*, 2020).

Imperial College international students who have gone back home complain of additional difficulties in taking the online examinations.

Many respondents expressed their concern about a growing divide between teaching and learning on the one hand, and assessment on the other hand.

Many international students at Imperial College London face having to do their online exams in the middle of the night after the university notified them that “being in a different time zone cannot be used as a mitigating circumstance” and they must be “available at the correct UK time, wherever they are.” Some, including Chinese students, cannot access study materials due to internet censorship... A physics student, who is quarantined in Shanghai, said he was unable to access Panopto lecture recordings for his revision because the site was blocked by China’s firewall. “Imperial College has made it more difficult than regular exams because now you have to deal with technology and censorship,” he said (Batty and Weale, 2020).

The ability to carry out final exams has varied across regions. While 80 percent of European universities reported that they were able to complete exams, in Africa 61 percent of the universities surveyed by the International Association of Universities (IAU) were forced to postpone or cancel the examinations (Marinoni, 2020).

In India, Members of Parliament have made impassionate pleas to Government to postpone the high-stake university entrance examinations (NEET and JEE), arguing that the health conditions and transport situation were such that many youths would not be able to make it to the exam locations or to compete adequately, which could result in distress and, possibly, suicides (The Pioneer, 2020).

Based on anecdotal evidence, it would appear that, in many settings, instructors not familiar with online education have displayed a tendency to revert to traditional ways of testing and proctoring, responding to increasing fears about cheating instead of seeking to adapt assessment to the new reality of online teaching and learning. Even in those institutions where the transition from face-to-face teaching to online education has been successfully accomplished, it has been difficult to adjust assessment. Testimonies from South Africa reflect efforts to focus on helping instructors learn to achieve effective delivery strategies and foregoing formative assessment approaches (Czerniewicz, 2020).

Even in those institutions where the transition from face-to-face teaching to online education has been successfully accomplished, it has been difficult to adjust assessment.

Higher education institutions offering professional programs that involve a heavy load of lab work and/or workshop activities have found it difficult to assess their students' progress in a meaningful way after of the move to online learning. Only those that had innovated in giving their students the opportunity to participate in online simulations, receive kits by mail, access remote labs or use virtual reality rooms have been in a position to continue with the experiential part of the learning process.

A big concern for many higher education institutions has been to avoid increased cheating and plagiarism during online examinations. Some have used proctoring software programs that lock down students' browsers and record them during the examinations to dissuade them from relying on external help. Others have shortened exam times to prevent cheating. However, these changes have not been without their own issues. Frequent technical failures have been reported, creating anxiety among students. Shorter-duration exams play against students with low-speed, unstable internet connections. It is difficult if not impossible to ensure similar conditions for all students in terms of broadband, computer speed and screen size. Students have rejected online proctoring out of privacy concerns (security and data protection). In

addition, programs such as ExamSoft and Proctorio appear not to operate properly when it comes to monitoring students of color or students with disabilities.¹⁶

Furthermore, even with online proctoring, some students can use other devices to get help from the internet or from other people, as has been the case even before the pandemic (Bouckaert, 2020). Students have been caught cheating during mid-term exams at several Korean universities (Hankyoreh, 2020).

Universities Rising to the COVID-19 Challenge

A positive development in the short term has been the dynamic and generous responses of universities worldwide in contributing their scientific knowledge and resources to help in the fight against the pandemic (Table 5). Within a few weeks after the onslaught of the virus, universities developed a faster and cheaper COVID-19 test in places as diverse as the United Kingdom (Oxford University) and Vietnam (Hanoi University of Science and Technology). Laboratories within universities have been busy producing medical supplies, sanitizing equipment and medicines, and donating surplus equipment to help the national and local hospitals. Four medical schools have teamed up in Hungary to help with virus testing.¹⁷

In Colombia, for example, the Genome Sequencing Lab at the University of Los Andes has worked diligently to process COVID-19 tests in partnerships with the local authorities, while the Valle University in Cali designed effective, low-cost ventilators that can be produced locally. In Sub-Saharan Africa, several universities have been at the forefront of epidemiological research and communication to the public on the COVID-19 crisis. Universities in Ghana, Uganda and Zimbabwe have been producing hand sanitizers, protective gear, and ventilators. Two universities in Myanmar, Yangon Technological University and Mandalay Technological University, invented robots that can transport food, medicine and trash at hospitals, reducing the need for person-to-person contact.¹⁸ In Nepal, the main public institution, Tribhuvan University, offered student hostels to quarantined workers coming back from the Middle East. Yale University transformed its state-of-the-art sports hall into a hospital ward for COVID-19 patients.

Table 5: Public role of universities during the pandemic

Areas of Intervention	Activities
Making Physical and Scientific Infrastructure Available	<ul style="list-style-type: none"> • Use of dormitories to host people in quarantine • Transformation of facilities into hospital wards • Adaptation of university labs for testing and blood donation on behalf of local hospitals and health authorities • Use of simulation facilities for training purposes • Free parking for hospital staff • Free rooms for hospital staff
Donations to Local Hospitals and Community	<ul style="list-style-type: none"> • Medical equipment and supplies • Personal protective equipment • Free driving service for health workers • Volunteering hub for university staff and students • Food and money donations to needy families and families of health care personnel
Design and Production	<ul style="list-style-type: none"> • Sanitizing liquid • Masks and visors • Stretchers with protective walls • Ventilators • Robots • Educational resources for learners in lock-down
Medical Training	<ul style="list-style-type: none"> • Fast-tracking training of medical and nursing students to work in ICUs • Training, preparation and up-skilling of medical staff and non-clinical health workers
Medical Treatment	<ul style="list-style-type: none"> • Free treatment of patients in university clinics • Free testing for the public • Involvement of medical students and clinical staff in treatment of patients
Research	<ul style="list-style-type: none"> • Rapid testing of COVID-19 • Mapping of COVID-19 genome • Research and trialing of treatment for infected patients • Vaccine development • Mathematical modelling of COVID-19 (geographical spread, effectiveness of public health measures and medical treatments) • Involvement of students in open science research (molecular folding using gaming) • Deployment of drones and robots for disinfection • App development (self-reporting; contact tracing) • Social and mental impact of COVID-19
Scientific Advice	<ul style="list-style-type: none"> • Policy advice to government and health authorities • Participation in public consultations / debates • Guidance to medical doctors and health workers • Hotline / website for COVID-19 patients and general public

Throughout the world, the medical and biology departments of universities have been working hard and fast to find treatments for people infected with the virus and develop an effective vaccine to stop the pandemic in the longer term. Oxford University and Imperial College, for instance, each elaborated one of the first vaccines to reach the advanced testing phase. University hospitals in Colombia, India, Italy, Pakistan, and the United Kingdom have involved medical students in the treatment of COVID-19 patients.

In Germany, at the initiative of the Charity University Hospital in Berlin, all universities with a medical faculty agreed to collaborate in a coordinated research effort on the diagnostics and treatment of the coronavirus. The Federal Government has supported this initiative with a US\$165 million grant (Gardner, 2020).

This positive endeavor is in sharp contrast with an unfortunate example of senseless academic competition that happened in Munich at the beginning of the pandemic, with serious adverse consequences in terms of the health authorities' ability to understand how COVID-19 was transmitted. Academic rivalries between two research teams, one affiliated with Munich University Hospital where Dr. Roth diagnosed the first coronavirus patient in Germany and was the first doctor to infer that the virus could be transmitted by asymptomatic patients, the other team working at the Robert Koch Institute (the German government's central scientific institution in the field of biomedicine), resulted in a barrage of disparaging comments from the second team towards the work of the first one. What apparently happened is that the Robert Koch Institute team got upset because the Munich University Hospital researchers published their findings in the *New England Journal of Medicine* before they did. This academic rift had a dramatic cost in avoidable deaths because the negative noise caused by the scientific controversy led the World Health Organization, the European Center for Disease Prevention and Control, and Western European public health officials generally to dismiss the importance of Dr. Roth's findings about asymptomatic transmission for many weeks while COVID-19 was silently spreading in Austria, France and Italy (Apuzzo *et al.*, 2020).

An outstanding example of solidarity in the COVID-19 context comes from the Kakuma Refugee Camp in north western Kenya. After the camp was abandoned by the authorities and humanitarian groups afraid of catching the coronavirus, refugee students working in collaboration with the University of Geneva stepped up "to

provide their communities with the guidance, information and basic necessities that they need during this troubling time," explaining "the importance of nutrition, sustainability, respect and cooperation" (O'Keeffe, 2020).

The increased visibility of universities during the pandemic has not been restricted to health-related activities but has embraced many scientific domains. A survey conducted by the International Association of Universities (IAU) found that the leaders of two-thirds of the universities surveyed had been consulted by government officials regarding public policy issues related to COVID-19 (Marinoni *et al.*, 2020). For example, the president of Universidad Estadual de Campinas (UNICAMP), one of the leading public universities in Brazil, reported that he has never been so solicited in the public sphere with requests to disseminate fundamental scientific evidence and help debunk false notions in areas such as the vital role of immunization, the reality of climate change, or the fact that the earth is not flat. Remarkably, 7 percent of the Brazilian population believes that our planet is flat, and in the United States 34 percent of millennials are not convinced that the earth is round. In recent years, flat-earth conventions took place in Brazil, Great-Britain, Italy, and the United States (Foster and Branch, 2018; Picheta, 2019).

The public information role of universities during the pandemic is all the more important as many people across the world have fallen prey to false news disseminated in the social media, often with dangerous or even fatal consequences. A study published in the *American Journal of Tropical Medicine and Hygiene* estimates that 800 deaths and more than 5,800 hospital admissions have occurred as a result of coronavirus-related misinformation during the first three months of the year—almost of the same order of magnitude as the overall toll of the 2002-03 SARS epidemic. People have drunk methanol or alcohol-based cleaning products and cow urine, and eaten large amounts of garlic or ingested large quantities of vitamins as a way of preventing infection. Online rumors resulted in mob attacks in India and mass poisonings in Iran. In the United Kingdom, telecommunications engineers were threatened and assaulted. A recent poll revealed that 28 percent of Americans believe that Bill Gates wants to use vaccines to implant microchips in people (Coleman, 2020).

Longer-Term Effects



Nature never deceives us; it is always we who deceive ourselves. — Jean-Jacques Rousseau

While it is difficult to predict the consequences of COVID-19 as the pandemic is still ongoing at the time of writing this study, it can be useful to outline some likely effects based on current trends and available information. For this purpose, this section looks at (i) the evolving shape of the new academic year, (ii) the likely effects on student learning, (iii) the economic downfall from the pandemic, (iv) shifts in the demand, and (v) what is likely to happen to internationalization.

Reopening in the Fall

Chad Dorrill, a 19-year-old student at Appalachian State University in Boone, N.C., died Monday 28 September, apparently of neurological complications related to COVID-19 (New York Times, 30 September 2020).¹⁹

The debate on whether colleges and universities can reopen safely at the beginning of the new academic year 2020-21 has been shaped, in each country, by a mix of three factors: the evolution of the pandemic, national politics, and the economic situation of higher education institutions. In many nations where COVID-19 cases peaked after a few months, the government authorities and the leaders of higher education institutions have decided that it would be mostly safe to reopen the campuses, although with specific precautionary measures (testing, tracing, and social distance). But in countries where the pandemic is still raging, such as most of Latin America and the United States, the outlook is uncertain and decisions may have been heavily influenced by political considerations ranging from denial (e.g., Brazil, Mexico, Tajikistan, Tanzania, Turkmenistan, USA) to various coping strategies (herd immunity, social distancing, testing, tracing, etc.), the level of resources that individual universities and colleges can afford to dedicate to protective health measures, and the financial pressure faced by institutions that rely heavily on tuition fees and related student expenditures.

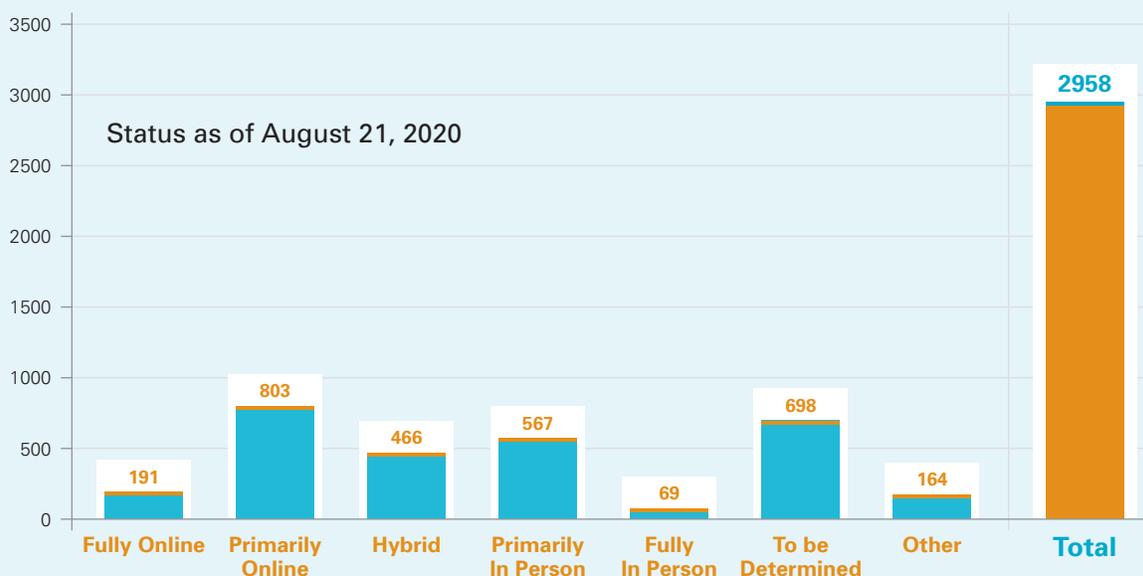
In the United States, it is likely that well-endowed institutions—sometimes described as boutique colleges and

powerhouse universities—will be in a much better position to enforce social distancing, conduct testing, isolate contaminated students, and do thorough tracing on a regular basis. Colby College in Maine, a rich, elite, liberal arts private institution, has been hailed as one of the few examples of college that has managed to reopen safely.

Masks are required by the college at almost all times, which surpasses the guidance issued by the state of Maine. It's all part of Colby's COVID-19 protocols, including a testing program among the most stringent in the nation. Students, staff, and faculty must submit to a nasal-swab test twice a week. Few campuses, especially liberal arts colleges like Colby, have launched such aggressive plans for combating the virus in-person.... Even Johns Hopkins University, known for its leading work on infectious diseases including COVID-19, abandoned plans to open its campus with a massive testing program, citing the worsening pandemic. ... That makes Colby's multi-million-dollar effort all the more striking. Its leaders bet the institution's testing, preparation, and location in a relative haven from the coronavirus would keep students safe, perhaps even safer than they would be at home. So far, they have been right. Colby poured \$10 million into its coronavirus response plan, a significant sum for most institutions (Quintana, 2020).

But for the majority of higher education institutions, available resources are not sufficient to create a safe environment for the students, forcing institutional leaders to decide to continue with online education. Figure 4, which shows the Fall plans of close to 3,000 colleges and universities, illustrates the high degree of diversity and uncertainty facing incoming and returning students. This is likely to increase the learning gap between students attending elite institutions, able to have a semi-normal on-campus education experience, and the majority of students forced to go through another year of online education.

Figure 4: Reopening status of U.S. colleges and universities



Source: The College Crisis Initiative

Already within a week or two after reopening late August 2020, several universities were forced to close again and move back to online because of the high number of contaminated students, starting with the University of North Carolina and the University of Alabama. According to the New York Times, the top seven institutions that had to again close their campus for face-to-face teaching in late August 2020 had more active COVID-19 cases than all of Canada (Usher, 2020b). Reports from Iowa point to heavy political pressure on public universities leaders to reopen in spite of a spike in the number of students and administrators contaminated (Kelderman, 2020). Overall, estimates indicate that as many as 1,000 institutions have reopened for the fall semester, participating in what has been characterized as “a vast unplanned pandemic experiment” (Marris, 2020). This has created a chaotic situation as colleges and universities are trying to deliver a combination of face-to-face and remote classes, identify and contain coronavirus outbreaks on campus, and control the sometimes-disorderly behavior of students. And those institutions that have sent contaminated students back home have been accused of unethical action for dumping potentially contagious people back into their home community (Leonhardt, 2020).

In the absence of any national strategy for tackling the coronavirus pandemic, colleges and universities in the United States are on their own when it comes to deciding whether and how to bring students back for the autumn term, which has already started for some institutions. Many are relying on their own experts, resulting in a wide range of approaches, from telling students to attend online classes from home to bringing everyone back and testing them three times a week. Some are welcoming limited numbers of students with a face mask stamped with the university’s mascot, a bottle of hand sanitizer and plans to test only a fraction of people on campus. It all amounts to a gigantic, unorganized public-health experiment—with millions of students and an untold number of faculty members and staff as participants (Marris, 2020).

The threat of economic difficulties may have led many US institutions to take chances with the health of their students, as some have complained.²⁰

Across the country, hundreds of colleges and universities are letting students decide if they want to return to campus this fall. Theoretically, this gives students a range of options and allows them to take their

education and health into consideration. In practice, however, there's an exploitative power dynamic in play, one that puts students in an unfair—and unsafe—position.

Colleges are in a difficult position, and I don't think they are intentionally trying to exploit us. But we have to acknowledge the exploitative potential at play: Colleges are forcing students to decide to return with minimal information. Such a dynamic doesn't create a real choice for students; it makes them an offer they can't refuse.

That leaves thousands of college students in the difficult position of deciding whether the educational value of returning to campus is worth the health risk. For some, returning home in the spring meant returning to difficult family dynamics that strained their mental health. For others, returning home meant being put at an academic disadvantage due to a lack of computer or internet access. And for many more, myself included, returning home simply ran contrary to everything we hoped to receive from a collegiate experience (Lorenzen, 2020).

Furthermore, the economic situation of universities is directly impacting their ability to enforce safe health protocols, as revealed by a Caltech study.

A group of faculty and students at the California Institute of Technology who in August analyzed reopening plans at some 500 universities around the country found that only 27 percent of schools planned to test

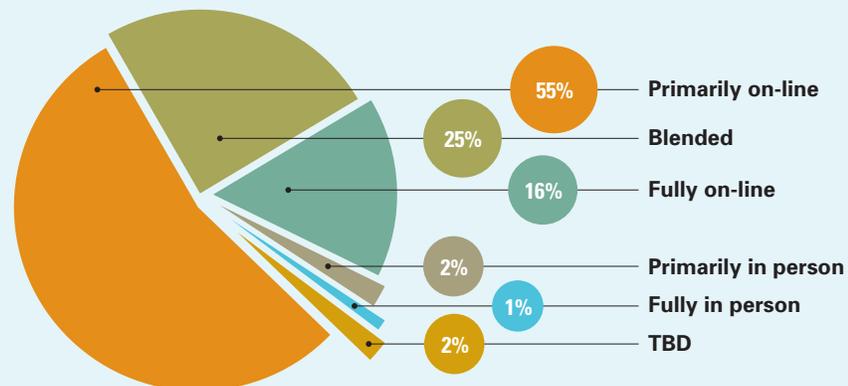
undergraduates for the virus as they returned to campus, and only about 20 percent planned to do any regular screening. An author of the study, Sina Boeeshaghi, a Caltech graduate student, said that the extent of a campus's testing program correlated strongly with the size of its endowment, indicating that cost was a factor. (Coronavirus tests can cost \$100 or more per person.) Lior Pachter, a computational biologist at the university, said many schools had pushed responsibility for health and safety down to the individual student or faculty level (Hubler and Hartocollis, 2020).

The absence of a national strategy in the United States can be contrasted with the quasi-military response in China, where the public universities that serve 33 million students have reopened but are keeping their students on campus under strict movement restrictions, leading some students to complain of being "locked up" like prisoners (Hernández, 2020).

In Canada, available data show a much smaller proportion of institutions ready to resume face-to-face education on campus than in the United States, and a majority (55 percent) offering online delivery (Figure 5). The only exception is the Saskatchewan Province, where a quarter of institutions are planning to welcome their students back on campus. Comparing colleges and universities shows that the former are more likely to offer on-campus or blended education than the latter (45 versus 20 percent), most likely owing to the fact that students at community colleges have more practical learning activities owing to the professional nature of many programs.

Figure 5: Distribution of Canadian HEIs by mode of reopening

Percentage of post-secondary institutions by mode of re-opening



Source: Canadian Association of University Teachers

In the United Kingdom, where universities decided to reopen with face-to-face classes, already by late September more than 40 universities had reported many cases of coronavirus, forcing thousands of students into self-isolation and a return to online teaching and learning. Many students have complained that British universities have risked the health of the students for economic reasons, as seems to have happened in the United States.

The outbreaks have shone a harsh light on Britain's decade-long campaign to turn higher education into a ruthless market. By cutting state grants and leaving schools dependent on tuition fees and room rents, the government encouraged them to jam more students onto campuses... The pandemic threatened to dry out that income stream. But Prime Minister Boris Johnson's Conservative government largely withheld the rescue money it gave to other industries, so universities carried on as normal, whatever the risks (Mueller, 2020).

Along the same lines, the opposition leader in Scotland has called for a "human rights" inquiry after the government allowed students to come back to university in the midst of growing numbers of COVID-19 cases.²¹

Many students have complained that British universities have risked the health of the students for economic reasons, as seems to have happened in the United States.

While Germany and Italy are implementing both compulsory masks and strict distancing rules, French universities have reopened with crowded lecture halls full of masked students, leading to the emergence of clusters of sick students after a few days within the new academic year and the subsequent decision to reduce the number of students per classroom or lecture hall.²² This has led to a semi-chaotic situation in many universities.²³

For lack of comprehensive information indicating which countries and institutions have reopened their campuses outside North America, it is impossible to assess with certainty the distribution of students able to study again face-to-face, those continuing online, and those enrolled

in some kind of blended modality, usually in professional programs requiring a significant proportion of practical work in labs and workshops. What is indisputable, however, is that the disparities in learning conditions offered to students during the new academic year are likely to be even more noticeable than in the first months of the pandemic, both across countries and within nations. University leaders in France have warned that, depending on the availability of classroom infrastructure and the possibility of maintaining social distance, students would experience a substantial degree of variation in learning situations and contact time with their professors (Marin, 2020). International students enrolled in schools that have opted to stay online, for example "Sciences Po" in Paris, have complained of ambiguous responses from the institution that, at best, represent a lack of planning and, at worst, misleading policies to avoid losing students that are not convinced the high tuition fees are worth the online experience (Conruyt, 2020).

In East Africa, students in Tanzania are going back to their university campus while those in neighboring Uganda will be taught online only in the few universities that have received clearance from the National Council for Higher Education. In Kenya, where every university will also continue online as instructed by the authorities, some were ready to start the academic year on time early September and others not. In North Africa, it is interesting to contrast the case of Tunisia, where universities are all back in regular operations with face-to-face teaching, with Morocco, where higher education institutions continue online. Similarly, in the Middle East, Turkey will continue teaching online while Egypt is set to reopen its universities for face-to-face lectures.

South Asia also shows a mixed picture. While campuses reopened in Sri Lanka mid-August, they remained closed in Bangladesh and India until late September. Universities in Pakistan reopened in early October, but only on an alternate day schedule. In Israel, leading religious authorities' refusal to allow students to be tested for COVID-19 as requested by the Ministry of Health in the wake of a surge of new COVID-19 cases, is likely to complicate the start of the new academic year (Times of Israel, 2020).

After planning to have all universities reopen for face-to-face education, the Malaysian Ministry of Higher Education abruptly cancelled all in-person registrations early October 2020 following a spike in coronavirus cases in the country. The move left several thousands of foreign students stranded.²⁴

The uncertainties surrounding the new academic year are going to have a particularly disturbing impact on first-year students most everywhere. After having been adversely affected by major disruptions during their final year of high school, they are facing unclear prospects as they start their university studies. First, as far as their experience during the pandemic is concerned, the school closures in March 2020 resulted in unequal learning opportunities for many students left without device or proper internet connection—even in OECD countries. For example, 9 million US children are without internet at home.²⁵ The postponement of final examinations and university entrance exams (as in China and South Korea) or their suppression altogether (as in France), and the experience of taking admission tests or exams digitally must have been unsettling at a minimum and upsetting in many cases.

Low-income students already face disadvantages when it comes to testing, including a lack of access to private tutors, study guides and other means available to wealthy students trying to boost their scores. Making them take a high-stakes test at home could put them at a further disadvantage, experts said.

“You’re going to have an upper-middle-class kid with his own bedroom and his own computer system with a big monitor in a comfortable environment taking his SATs,” said Mark Sklarow, chief executive of the Independent Educational Consultants Association, which represents private college admissions coaches. “And you’re going to have a kid who lives in a home maybe with spotty broadband, one family computer in the dining room.” He added, “I don’t know how that can be equitable” (Hartocollis and Goldstein, 2020).

Thus, notwithstanding the absence of hard evidence at this moment, it can be safely assumed that the cohort of 2020-21 incoming students is coming to higher education at a substantial disadvantage, from an academic and emotional viewpoint, compared to their peers from previous years, as illustrated by the following testimonies out of Canada and the United Kingdom.

Canada: The incoming high school graduates are probably the least well-prepared in modern history. Regular classes ended mid-March and students made a chaotic transition to temporary, online instruction. To call the resulting educational experiences uneven would be too kind (Coates, 2020b).

United Kingdom: “Children from disadvantaged backgrounds are the ones who benefit the most from

being in a school environment, where their needs can be supported,” said David Laws, the former education minister. “They are the children who, when they go home because of the school closures, will face the most challenging learning circumstances because of a comparative lack of books, learning resources, IT and parents with the capacity to help. There is a real risk that if there is a prolonged school closure it is going to hit the more vulnerable children the most.” Research shows that, by the time students finish their GCSEs, those eligible for free school meals are 18.1 months behind their classmates in English and math attainment (Tapper *et al.*, 2020).

Diminished Learning and Increased Student Failure

Notwithstanding the lack of statistics to document the impact of the pandemic on student learning, it is safe to assume that the many students who have faced difficulties all over the world—whether for lack of a device, inadequate internet access and/or insufficient training for online education—will have had an incomplete learning experience during the 2019-20 academic year, as illustrated by the following vignettes from various continents.

Australia: A recent study found lower learning achievement results for primary and secondary education students after the schools closed down and they moved to online classes. The main factors affecting these students were limited access to devices and reliable internet, parents and caregivers juggling multiple commitments related to work and remote learning, huge pressures on families experiencing job loss, and disengagement from learning by students uncertain about their future. The Victoria University researchers who carried out the study predict that this decline will most likely negatively influence the performance of these students when they enter university (CIRES, 2020).

Belgium: It is estimated that the number of dropouts in Belgian universities increased by 20 percent during the 2019-20 academic year.²⁶

Colombia: The presidents of accredited private universities fear a 50 percent increase in the number of dropouts as a result of the switch to online education (Observatorio de la Universidad, 2020a).

France: University professors are concerned about losing a substantial proportion of first- and

second-year students facing difficult learning conditions at home (Le Nevé, 2020).

Gaza Strip: The coronavirus pandemic and two lockdowns are threatening to increase university dropout rates sharply in the Gaza Strip even as classes resumed in August. Thirty percent of students dropped out this semester, and only 10 percent paid the full tuition fees,” one university vice president in Gaza told researchers (Jawabreh, 2020b).

India: As India is a large and diverse country, with about 38 million students in about 1,000 universities and 47,000 colleges, the availability of technical infrastructure for imparting online education varies throughout, creating a digital divide and a sense of inequity in the minds of the students. Similarly, lack of access to devices, networks, and sufficient bandwidth is depriving a considerable portion of students from their studies and furthering this divide. Adopting complete online learning is also becoming a health hazard for students in terms of diseases like obesity, sleep disturbances, spinal problems, anxiety, and depression (Mittal, 2020).

Indonesia: More than a third of Indonesian students have limited or no internet access, according to the Education Ministry, and experts fear many students will fall far behind, especially in remote areas where online study remains a novelty. ... The difficulties faced by rural students today will further contribute to inequality in Indonesia, the world’s fourth largest country (Paddock and Sijabat, 2020).

Kenya: Only 3 out of the 10 public universities were able to start teaching online by September 2020, meaning almost a complete year lost for students at the remaining public institutions that will remain closed until January 2021. By contrast, most private universities switched rapidly to online education back in March (Maombo, 2020).

South Africa: Half of South African universities will not be able to complete the full academic year. The Minister of Education expressed his concern “about the wide range of variation” in progress towards the end of the 2020 academic year and preparations for the 2021 one (RPF, 2020).

United States: New research suggests that, by September, most students will have fallen behind where they would have been if they had stayed in classrooms,

with some losing the equivalent of a full school year’s worth of academic gains. Racial and socioeconomic achievement gaps will most likely widen because of disparities in access to computers, home internet connections and direct instruction from teachers... And the crisis is far from over. The harm to students could grow if schools continue to teach fully or partly online in the fall, or if they reopen with significant budget cuts because of the economic downturn. High school dropout rates could increase, researchers say, while younger children could miss out on foundational concepts in phonics and fractions that prepare them for a lifetime of learning and working (Goldstein, 2020).

Besides the adverse impact on the quality and relevance of the educational experience during COVID-19, there is a concern of increased mental health problems among students.

Large numbers of students all over the world will have missed out on the practical component of their education and/or the opportunity to undertake or complete internships. This will diminish their work readiness, especially in the case of students enrolled in cooperative programs.

Besides the adverse impact on the quality and relevance of the educational experience during COVID-19, there is a concern of increased mental health problems among students. Two studies from the United States give an idea of the scope of the issue. The first one, conducted by the Student Experience in the Research University Consortium (SERU), found that “about one-third of all students had screened positive for major depressive disorders and two out of five screened positive for major depressive and generalized anxiety disorders” (Marklein, 2020a). The second one, released by the American College Health Association (ACHA), indicated that 60 percent of students surveyed had difficulty accessing mental health care during the spring semester, revealing the inability of colleges and universities to effectively respond to the increased needs for emotional support.

A recent survey undertaken in South Africa reveals that the percentage of students with depression has doubled



A microscopic but very deadly virus has dealt a body blow to higher education.
— Lee Pelton (President, Emerson College)

compared to previous years (Oyenubi and Kollamparambil, 2020). Female students in developing countries are more likely to suffer from the crisis than males, as illustrated by the following testimony from Colombia.

Amid lockdowns, youth unemployment has spiked, and many students cannot pay tuition, which even at public schools can cost anywhere from one to eight times the monthly minimum wage... Young women, in particular, are facing the highest rates of unemployment in the country. Some have turned to so-called webcam work, performing sexual acts on the internet for money. “I have to pay my tuition, manage the house, pay the bills, meals, and I support my mother and two sisters,” said one of those students, who lost her job during the crisis and turned to the internet “in a moment of desperation” (Turkewitz, 2020).

Making a parallel with the concept of “years of potential life lost” (YPLL) used in epidemiology, which is a mathematical estimate of the loss of life due to various types of accidents and diseases, Professor Schrock at Emporia State University has proposed the notion of Years of Potential Intellectual Life Lost (YPILL) as a measure of the educational damage provoked by the COVID-19 pandemic (Schrock, 2020). It would be a composite index of loss in student learning outcomes measured on the basis of test scores, years of study lost, and diminished research production and impact. While actually calculating YPILL in every country may prove challenging because of the significant data and methodological difficulties, it could be useful to define and apply a common methodology to assess the impact of the pandemic on higher education and research systems, given the magnitude of the COVID-19 crisis.

What is certain is that students graduating this year are facing difficult prospects in the medium- and long-term. Many will not find a job easily, and those who are lucky enough to find a job will most likely be penalized by receiving incomes below those earned by graduates of the previous years.

Researchers have shown that the economic scars of graduating into a recession—sustained higher rates of

unemployment (for high-school graduates) and lower earnings (for everyone) compared with peers graduating as little as a year or two earlier or later—can last for as long as 10 or 15 years. This bad luck may also be dangerous for people’s health: Workers who were launching their careers during the recession of the early 1980s were found to have a heightened risk of dying in middle age, often due to increased incidence of heart disease, lung cancer, or drug overdoses (Pinsker, 2020).

In developing countries where graduate unemployment was already chronically high because the economy could not absorb the growing number of university graduates, the situation will only get worse. Recent statistics from Turkey show, for example that half of the people registering for unemployment are recent university graduates.²⁷

Reduced Resources, Shifting Demand, Closures and Restructuring

After triggering a health crisis of unprecedented scale, the COVID-19 pandemic has quickly evolved into a deep financial crisis threatening national economies worldwide. The higher education sector has been particularly hit by both the health emergency and the economic recession, as universities, their students and most households have suffered substantial income loss. The rapid transition from face-to-face to online education has caused unplanned expenditures in the form of investment for the acquisition or upgrading of LMS, videoconferencing software, computers, training of instructors, and emergency financial aid.

The preparation of the fall semester has involved additional spending on health prevention measures (additional cleaning, thermometers, tracing app, security personnel, etc.). For many US institutions continuing with online education, the absence of students on campus means substantial losses in terms of auxiliary income provided by housing, food, gym and parking revenues, amounting to US\$50 billion a year globally. Several universities, including Boston University, the University

of Wisconsin in Madison, and Johns Hopkins University, are anticipating a 5 percent deficit as a result (Marris, 2020). French universities have estimated the additional cleaning costs at 2 percent of their annual budget while the six Francophone universities in Belgium calculated a US\$20 million additional cost due to distance learning and teleworking, sanitary facilities and outfitting of premises, and increased social assistance for students.²⁸

Altogether, the outlook for the 2020-21 academic year and beyond is highly worrisome, forcing difficult questions about long-term viability and the need for substantial changes. A survey of national associations of university presidents in 28 European countries found that the core budget of public universities is likely to go down in seven higher education systems: Belgium-Flanders, Croatia, Czech Republic, Finland, Romania, Serbia, and Spain (Mitchell, 2020).

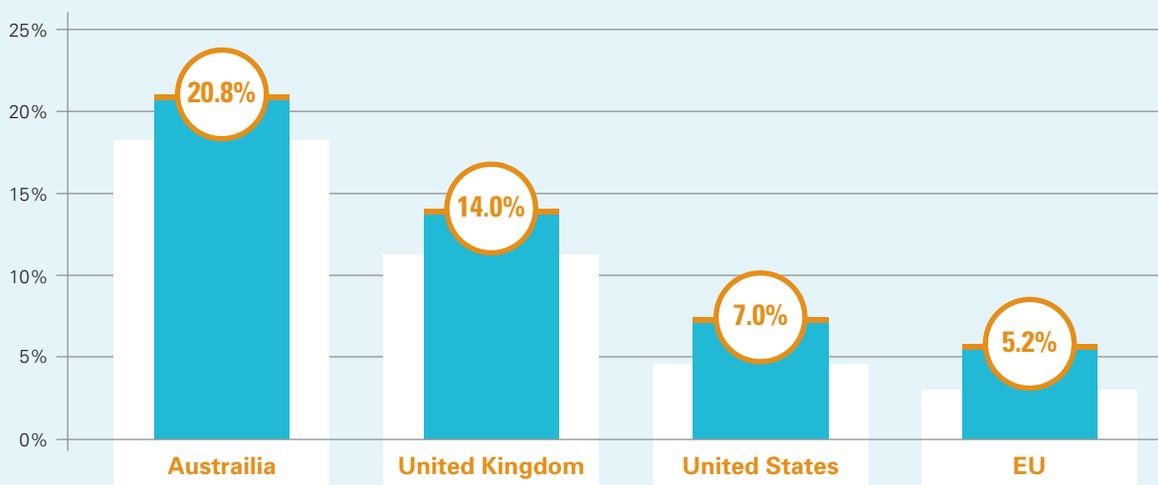
Within Europe, a number of countries are going back on the principle of free movement of students. As a result of the Brexit divorce, England will be imposing international fees on European students as of September 2021, although some universities are offering hefty discounts to attract European students whose legality may be challenged on grounds of discrimination.²⁹ Belgium is planning to restrict the number of French students enrolling in its universities,

who in some cases represent more than 20 percent of the total student population.

By contrast, the higher education systems of rich countries with predominantly public provision and funding, such as Denmark, France, Italy, Portugal, and Switzerland, are seeing an increase in student demand and are actually funding additional university places for the new academic year. This has been triggered, to a large extent, by the fact that the pandemic has reduced opportunities for work or travel, which means that fewer students are considering taking a gap year to get work experience or explore the world, as some would do in normal times.

Colleges and universities that rely heavily on the fees paid by international students are particularly vulnerable. According to recent studies, US universities can expect to lose US\$4.5 billion in revenues from foreign students in the 2020-21 academic year (Marklein, 2020b). This is also the case in Australia, Canada, Ireland, New Zealand, and the United Kingdom. Even in countries that do not charge extra fees for international students, like Germany, a 20 percent decrease in foreign students is expected.³⁰ The U-Multirank 2020 results show that universities in Australia and the United Kingdom are more vulnerable to the effects of the COVID-19 crisis than those in the United States and Europe (Figure 6).

Figure 6: Expected decline in income as share of total institutional budget



Source: U-Multirank

Available data also confirm that private universities (especially business schools) are more dependent on tuition fees than public ones. In the first case fee revenues range from 40 to 85 percent of income, while the range is 7-30 percent for public universities. In the United States, the share of the budget coming from international fee income is twice as high in private universities as in public ones. Australia is likely to see a shortfall of US\$3 billion to \$5 billion as a result of the sharp drop in international students. In Europe, dependence on fee income is highest in the United Kingdom (54 percent), Latvia (38 percent), Ireland (35 percent) and Bulgaria (35 percent). Irish universities are fearing the negative impact of the decline in international students (O'Brien, 2020). Russian private universities and the fee-charging programs in public universities are feeling pressure from the crisis; even though they reduced their prices as they moved online, they have seen a significant decline in the number of students—up to 30 percent in some cases. This may lead to the dismissal of many instructors (Vorotnikov, 2020). The case of the London School of Economics, which is the British higher education institution with the greatest share of international students (68 percent), illustrates the financial vulnerability that comes with high levels of foreign student enrollment.

In April, the LSE announced that its director, Minouche Shafik, would take a 20 percent pay cut and that other members of the leadership team would reduce their pay by 10 percent, initially for six months... A spokesman for the LSE said that “like most HE institutions in the U.K., we may be facing a substantial loss of income in the coming year. We are putting in place a number of practical actions to mitigate this, including delays to spending on capital projects, a conditional freeze on all hiring proposals and reducing the total nonpay budget by 10 percent ...” Mark Corver, founder of the consultancy firm DataHE, said there was a group of institutions, including the LSE, whose members faced losing about two-thirds of their tuition fee income as overseas traffic slowed; another group whose intake of international students was about a third and would still lose a significant proportion of fee income; and other institutions that did not enjoy those higher revenues so did not have this particular problem (McKie, 2020a).

Within the United Kingdom, Scotland has been relatively spared, as the proportion of international students enrolled for the 2020-21 academic year is up 3 percent, which will allow the Scottish universities to avoid implementing compulsory redundancy schemes that automatically trigger in case of a budget deficit (Matchett, 2020).

Even in countries like Canada that are not as vulnerable as Australia or the United Kingdom because of its smaller proportion of international students, the situation remains precarious.

Conditions are not in institutions' favors. Governments are making it hard for international students to come to Canada. A substantial but unknown number of students will not start or return to school, leaving institutions strapped for cash. As financially troubled post-secondary institutions reduce staff, cancel new hires, and cut back on expenditures, they also prepare for the most uncertain instructional semester ever (Coates and Holroyd, 2020).

Generally speaking, the crisis has revealed pre-existing structural weaknesses in the financing models of many higher education systems and institutions. In OECD countries with substantial cost-sharing, universities and colleges will be facing diminished resource envelopes, especially if students are successful in their demands for lower fees while online education remains in place. The United States has perhaps seen the worst financial pattern in the past two decades. Since 1998, the cost of going to college has grown by 150 percent, compared to a cumulative inflation of 54 percent. As a result, student debt rose from \$0.5 trillion in 2006 to \$1.6 trillion in 2020.³¹

Students have signed petitions or gone to court to obtain reduced fees in countries as diverse as Chile, England, South Korea, and the United States (Anderson, 2020). For private higher education institutions that are fully dependent on tuition fees and/or on international students, financial survival will be seriously tested during the deep recession that many economists predict. Large numbers of students with limited resources could drop out of higher education altogether or at least shift to more affordable public institutions. In the United States, this could mean fewer young people enrolling as out-of-state students, which would be good news for local public colleges. A July 2020 survey of 900 incoming students in the United States found that as many as 40 percent were considering putting off enrolling for one year, which would mean a sizeable drop in tuition income for many colleges and universities (Marris, 2020).

As a result of these shifts, it would not be unrealistic to expect a wave of mergers in the public and private sub-sectors, and significant numbers of private colleges and universities closing their doors for good. In the United States, for example, the twelve public community colleges in Connecticut will be merging into a

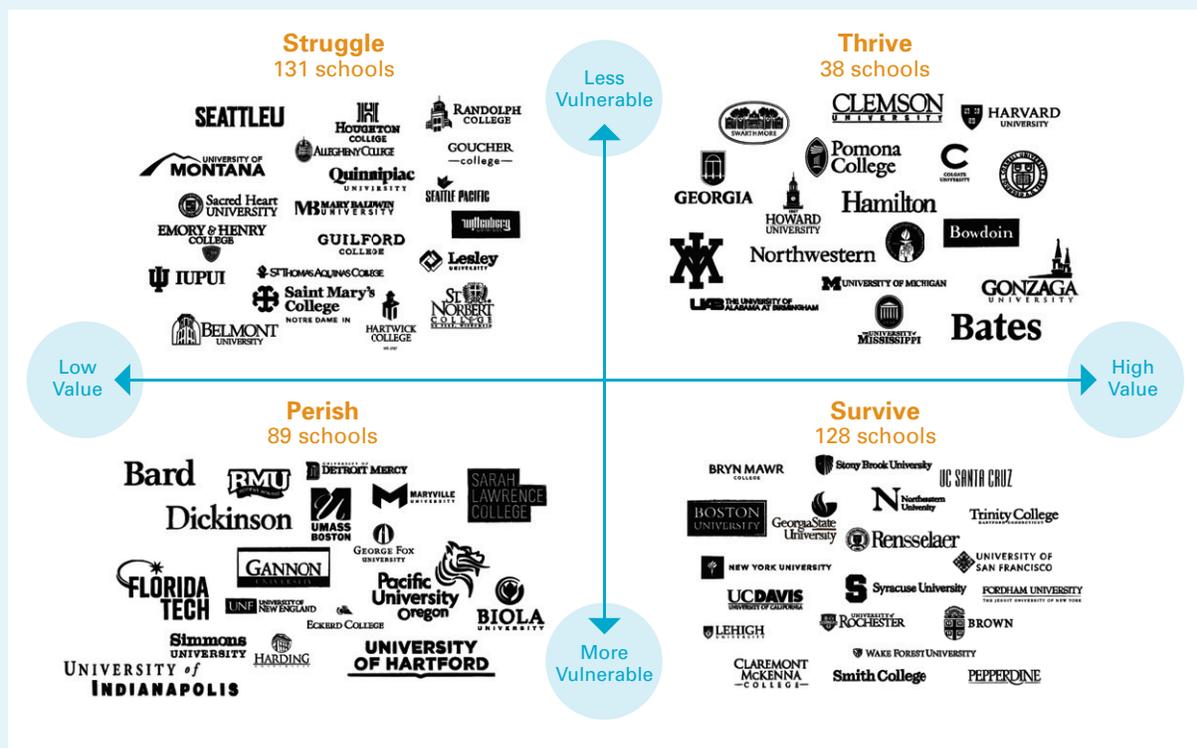
consolidated accredited college (St Amour, 2020). Similarly, in Vermont, the network of State Colleges will close three campuses to manage the pandemic's financial fallout and move towards a system of low residency and increased distance learning (Duffort, 2020). Pine Manor College in Massachusetts will be absorbed by Boston College, with the purpose of better serving low-income students. Urbana University in Ohio has permanently closed its doors. A survey by the *Chronicle of Higher Education* found that, as of June 2020, close to 50,000 faculty and administrative staff across 190 colleges and universities had been negatively affected in the form of a layoff, non-renewal of contract, or temporary unpaid leave of absence. City University of New York, Ohio University, the University of Arizona, the University of Massachusetts, and the University of Missouri are among the institutions compelled to take such measures (Kwon, 2020).

viewpoint and that 89 are in danger of having to close down (Galloway, 2020). According to the study, the Thriving quadrant includes exclusive schools willing to harness technology to decrease per-student cost. The Survival quadrant are schools with a strong brand and/or a sizeable endowment that are facing diminishing demand. The Struggle quadrant are schools with reduced demand, high tuition, or small endowments. Finally, the Perish quadrant are schools with high tuition, low demand, low endowments, and high dependence on international students. Several universities have already announced a faculty hiring freeze for 2020-21.

... there is no question that all but the wealthiest institutions are facing deep financial pain and potential catastrophe. Even relatively conservative estimates like those published by the college financial planning firm Edmit suggest that, thanks to declining revenue and investment returns, one-third of all private colleges are now on track to run out of money within six years—a nearly 50 percent increase in estimates from 2019—and many are vulnerable to bankruptcy much sooner (Carey, 2020).

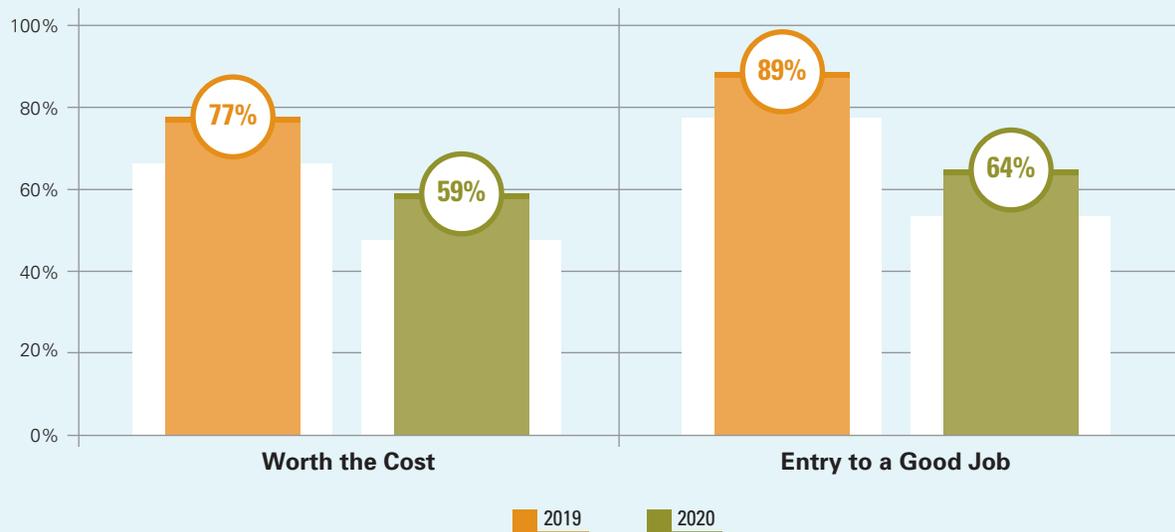
Figure 7, which displays the results of a study of the likely fate of 446 colleges in the United States that are all ranked by US News and World report, reveals that 131 are likely to face a difficult year from a financial

Figure 7: Vulnerability of U.S. colleges



Source: Galloway, 2020.

Figure 8: Confidence in the value of higher education in the United States



Source: Strada Education Network, "Public Viewpoint: COVID-19 Work and Education Survey," September 2020.

Previous economic crises have seen large numbers of young and older adults going back to school to get additional qualifications to be better prepared for the recovery. But this time around, there are signs that many people in the United States have lost faith in the value of higher education to help them achieve more relevant training or better incomes. A recent Strada Foundation survey found that adults ages 25 to 44, who have no post-secondary degree, are less confident that they were a year ago about the value of getting more education. Figure 8 shows that an 18 percent decrease in the belief that enrolling in a higher education would be worth the investment.

Universities in Australia (Deakin University and Central Queensland University), in Canada (Province of Manitoba), India, New Zealand and the United Kingdom have announced layoffs, especially among non-permanent faculty members. Ironically, many among the people fired are the same tech-savvy instructors who helped universities move online rapidly at the beginning of the pandemic. Faced with a US\$5 billion shortfall in revenue from international students, the universities and the national teacher union agreed on a "jobs protection framework" to minimize job losses, including for non-permanent staff, through salary reductions across the board (Usher, 2020a). Australia's largest university, Monash University, is facing a large deficit, which may force it to close down (Maslen, 2020a). Universities in

countries as diverse as Kenya and New Zealand have asked staff to take a "voluntary" pay reduction. South Korean universities have also suffered from the reduction in foreign student numbers.

In all parts of the world, students graduating this academic year are likely to encounter huge employment challenges as a result of the economic recession. Similarly, working students who lose their job may not be able to have the resources to continue studying. As a general principle, the lower the share of public funding and public provision in a higher education system, the more vulnerable it is likely to be. In the United Kingdom, for instance, where half of higher education funding comes from private sources, a 2.5 billion pounds shortfall is expected next academic year. A recent study by the European University Association has found that, since the 2008 financial crisis, "countries like Luxembourg, Germany, Switzerland, Norway, Austria and Denmark have significantly increased university funding relative to their GDP growth, while the Czech Republic, Romania, Slovakia and Ireland reduced funding over the same period" (Estermann *et al.*, 2020).

In the many developing nations that have traditionally allocated insufficient public funding for higher education, usually less than 0.5 percent of GDP, the consequences could be dire. The prospects for both quantitative

expansion and improved quality are very poor. Reduced public budgets and limited room for increased private funding could translate into many students opting out of higher education and, in turn, institutions unable to sustain quality teaching and research. Reduced resources for households may result in diminishing student numbers. In Colombia, for example, early indications show a 13 percent decrease in the number of new students enrolled for the fall semester (LEE, 2020). The presidents of several private universities have announced cuts in personnel as a result of higher levels of dropouts, reaching 50 percent in some cases (OUC, 2020). The Government of Ecuador announced a \$98 million cut in the budget of all public universities, which is likely to result in staff redundancies. Planned budget cuts in the Brazilian State of São Paulo have left researchers alarmed: “academic researchers in São Paulo, Brazil’s wealthiest and most populous state, are warning that proposed legislation before the state assembly could cripple major universities and long-term research projects. The state is home to three of the most prestigious universities in Latin America and produces 40 percent of Brazil’s scientific publications” (Amigo, 2020).

Overall, observers estimate that the crisis could annihilate the progress in enrollment of the past decade experienced by Latin America.

Over the past two decades, millions of young people in Latin America became the first in their families to head to college, a historic expansion that promised to propel a generation into the professional class and transform the region. But as the pandemic grips the region, killing hundreds of thousands and devastating economies, an alarming reversal is underway: Millions of university students are leaving their studies, according to the Inter-American Development Bank. Enrollment is expected to drop by as much as 25 percent in Colombia by the end of the year, with similar numbers expected in other countries... At Colombia’s main teaching college, the rector, Leonardo Fabio Martínez, said as many as half of the students might leave this year, raising questions about who will teach the next generation of grade-schoolers... At the Universidad Nacional, a prestigious public university in the capital, Bogotá, several students went on hunger strike on August 10, camping out in a dozen tents on the otherwise empty campus, calling on the government to cover their tuition as their families hit bottom (Turkewitz, 2020).

Similar challenges have arisen in Sub-Saharan countries. The outlook is grim for private universities in Ghana.

The president of the Council of Independent Universities announced that many could be forced to close if the effects of the pandemic went beyond June 2020 (Kokutse, 2020). Similarly, a few private universities in Rwanda have begun to fire staff. In Kenya, both the private universities and the public universities enrolling fee-paying students in some of their programs have expressed concern about their inability to continue paying their staff.

“Looking at the way things are, most of the institutions will not be able to pay salaries for all staffers if the lockdown continues beyond March. Learning programs have been disrupted severely, raising the question of how we are going to pay the lecturers and other staff. Most of the students pay fees at the end of the semester. They left before finishing this, yet we have to pay the staff at the end of every month whether in session or not,” said Professor Mumo Kisau, the chairman of the Kenya Association of Private Universities... “Payroll costs are a big challenge because they depend largely on privately sponsored students, but this has been on the decline. We are scrambling to put up intervention measures not only to stay afloat but also to keep our programs going,” Professor Stephen Kiama, vice-chancellor at the University of Nairobi told reporters in Nairobi recently (Nganga *et al.*, 2020).

In South Africa, the proposed budget reductions amounting to 8 percent of the annual allocation may have adverse effects on the national research capacity; some universities have stopped enrolling new PhD students.

Budget cuts and the diversion of resources to ameliorate the effects of COVID-19 are set to negatively impact higher education in South Africa, as well as national science and research systems, casting doubt over the system’s ability to meet postgraduate and PhD targets, and sparking fears of staff reductions further down the line as the pandemic continues to slow down the economy (Naidu and Dell, 2020).

In spite of its economic might, China is not exempt from these financial worries and may see shrinking research budgets as a result of the pandemic. Significant budget cuts are anticipated, which could slow the momentum of the previous years during which China became the world leader in scientific production.

Like all countries, China is facing severe economic losses from the pandemic, and that will certainly have a negative impact on scientific research, because

funding will be reduced and projects will be delayed, says physicist Wang Yifang, director of the Institute of High Energy Physics in Beijing. Some universities have already announced a cut in funding. The research budget given by the education ministry to Jiangnan University in Wuxi, for example, will drop by more than 25 percent for 2020, and other universities are facing similar reductions. “An overall budget cutting of government spending on higher education is highly possible, though the level and scope may vary by regions, universities and fields,” says Tang Li, a science-policy scientist at Fudan University in Shanghai (Cyranoski, 2020).

Impact on Research and Internationalization

The fact that many universities continue to operate online means that research activities are still adversely affected in many countries. The closure of labs and travel restrictions mean that researchers in many disciplines are unable to continue their experiments or field investigations except when remote lab work and collaborations are possible. A survey carried out by the Association of Commonwealth Universities revealed that 80 percent of respondents saw their research activities affected by the crisis, but 69 percent of them reported that they were able to move their research online by doing online data collection, preparing grant applications and writing up their findings (ACU, 2020). As could be expected, the impact has been much higher in the natural sciences (92 percent) than in the humanities and social sciences (61 percent). In the natural sciences, the interruption of fieldwork will create significant data gaps and adversely affect long-term studies on the environment and the animal world (Primack, 2020). Similarly, the IAU survey mentioned earlier showed a negative impact of the crisis on research, mainly because of the cancellation of international travel (83 percent of universities) and scientific conferences (81 percent of universities). More than half of the universities surveyed reported that scientific research projects would not be completed (Marinoni *et al.*, 2020).

A growing concern for all research universities is the likelihood of reduced funding—public and private—in the coming years, except for programs and projects directly related to national priorities or to COVID-19 and its consequences. The European University Association signals that the crisis has been especially acute for early career researchers forced to delay their projects and finding themselves at risk of losing their research funding (EUA, 2020). The European Commission has announced

a 10 percent reduction in its research budget over the 2021-27 period.³² A recent assessment of the impact in Australia found that the funding reductions may result in job loss for around 6,000 researchers (junior and senior) over the next four years, representing around 11 percent of the total research force.³³ In the United States, similarly, while reductions in funding are likely to affect researchers at all levels of seniority, doctoral students and early-career researchers will most likely bear the brunt of the crisis and ensuing cuts. According to a recent Science article, doctoral students will suffer delays in completing their research work and dissertation, the number of post-doc positions will shrink, and employment opportunities for young scientists will be few and far between, especially for international students who had planned to stay on a few years after finishing their studies in Europe or North America (Yan, 2020). Along the same lines, the American Institute of Physics prepared a report outlining the adverse impact of the pandemic on research in the field and some related equity preoccupations.

... the physical sciences may be at a “tipping point” given the scale of the disruption. It stresses that curtailed international exchanges, reduced job opportunities for early career researchers, and knock-on effects from university budget contractions could severely diminish the physical sciences workforce. It anticipates that the financial toll will be “particularly disastrous” for Historically Black Colleges and Universities, slowing the “outsized contributions” they make toward increasing the diversity of the scientific community (American Institute of Physics, 2020).

Funding cuts will likely affect research capacity and output in universities in the poorest countries, which have been heavily dependent on funding from donor agencies, as evidenced by the results of the IAU survey presented earlier.

Data on research production have revealed that women academics seem to be affected more seriously than men. This reflects the skewed division of labor within households in favor of protecting men’s professional duties more than those of women. As a recent New York Times article summarized, “... the pandemic has laid bare gender inequities across the country, and women in academia have not been spared. The outbreak erupted during universities’ spring terms, hastily forcing classes online and researchers out of their laboratories. Faculty with young or school-aged children — especially women — had to juggle teaching their students with overseeing their children’s distance learning from home” (Kramer, 2020).

This was supposed to be a big year for Einat Lev. She planned to do field work in Hawaii and Alaska, submit a major research proposal, then finish writing the last of five papers necessary for her tenure application. In September, she would finally go before the review committee, the final step to becoming a full-fledged associate professor of seismology at Columbia University. Now, with her 7-year-old daughter at home, Lev can only work four hours each day, instead of her usual 10.

Six weeks into widespread self-quarantine, editors of academic journals have started noticing a trend: Women — who inevitably shoulder a greater share of family responsibilities — seem to be submitting fewer papers.... Men are submitting up to 50 percent more than they usually would. This threatens to derail the careers of women in academia, says Leslie Gonzales, a professor of education administration at Michigan State University, who focuses on strategies for diversifying the academic field: When institutions are deciding who to grant tenure to, how will they evaluate a candidate's accomplishments during coronavirus? ... (Kitchener, 2020)

The medium-term outlook for internationalization is dim. Continuing restrictions to travel and visa issuance have brought short-term mobility to a complete halt in most parts of the world. Academics and students who had planned longer-term relocation have had to suspend or cancel their projects. Colleges and universities everywhere are less likely to start new partnerships and collaborations. The IAU survey mentioned earlier revealed that half of the universities that responded indicated a weakening of existing partnerships as a result of the COVID-19 crisis (Marinoni *et al.*, 2020). Almost 90 percent of the universities reported a negative impact on the mobility of students and academic staff.

Patterns of international student flows are likely to change significantly as a result of the pandemic. As mentioned earlier, applications for studies in North America, the United Kingdom and other European countries are well below the levels of previous years. A recent survey among students in China and Hong Kong found that 86 percent are not thinking about going overseas. Those who are interested in pursuing studies in a foreign country indicate a preference for Asian countries among their top destinations of choice (Xiong, *et al.*, 2020).



Mitigation and Transformation Measures



Big breakthroughs happen when what is suddenly possible meets what is desperately necessary. — Thomas Friedman

Equity in tertiary education is a challenge even in the best of times. The crisis triggered by COVID-19 and likely exacerbated by a recession will undoubtedly stress the most vulnerable even more. Stakeholders who are in a position to prepare for the equity implications should begin now, identifying at-risk students and communities and engaging with them, to understand and respond with support that can help them continue their studies.

This crisis has the potential to expand inequities in tertiary education on a global scale. It is imperative to devise interventions that improve students' persistence and retention. This is a task for governments, institutions, development partners, and individuals alike. While tertiary education institutions are first responders when it comes to at-risk students, governments need to support and complement their efforts through equity-oriented policies, frameworks, and targeted funding (Malee Bassett and Arnhold, 2020).

— Roberta Malee Bassett and Nina Arnhold, *the World Bank*

This section looks at the range of measures implemented during the first six months of the pandemic to attenuate its adverse impact on colleges and universities and create the conditions for more effective and resilient higher education systems and institutions. For this purpose, it examines two dimensions of policies and decisions, first at the national level, and then at the institutional level.

National Policies

While it is difficult, at this early stage of the pandemic, to have a comprehensive view of national programs adopted by governments to support affected colleges and universities, available information shows three main categories of measures undertaken at the national level: (i) financial stimulus packages and student loan moratoria, (ii) capacity-building initiatives to ease the transition to online learning, and (iii) flexibility in quality assurance and assessment requirements, standards and deadlines.

Financial Support

A number of industrial countries—among them Denmark, France, Finland, Germany, Singapore, Taiwan, the United Kingdom, and the United States—have rapidly approved economic rescue packages that include support for colleges, universities and/or students. They are primarily intended to help public colleges and universities weather the crisis by protecting the employment of most administrative and academic staff, boosting student welfare, and helping with the cost of the technology needed for a smooth transition to online education. France and

Germany provided emergency financial aid targeting students who have lost their part-time jobs and/or access to subsidized residence halls. Austria gave an additional semester of financial aid to all eligible students regardless of their academic results. After holding out on additional funding for the university sector during the first six months of the pandemic, the Australian government eventually offered a AUS\$1 billion package to support research at universities and partially compensate for the loss of revenues from international students at the beginning of the new academic year 2020-21.³⁴

Many governments are also providing universities with targeted research funding to help identify effective medicines to treat COVID-19 patients and to develop a vaccine. The Nordic countries are also funding research in the social sciences to study and mitigate the social consequences of the pandemic.

The Finnish and German cases illustrate the better position of countries with low levels of private funding and provision. In the short run, it is easier for them to increase public spending and public debt to protect the higher education sector, which is why their universities have not experienced budget cutbacks. Some German states have even been able to offer additional funding: The State of Hesse, for instance, gave a €40 million boost to its universities in March 2020. Similarly, the Danish, Finnish and Swiss governments have offered additional funding to expand student intake at the beginning of the new academic year (Arnhold *et al.*, 2020). Whether these economies will be able to sustain this level of financial commitment as the crisis lingers and austerity programs are put in place remains to be seen.

In the longer term, systems with a more diversified funding approach may be more resilient, as the financing—and the risks—would be spread among public sources at the national and decentralized levels and private contributions from households and firms. In Finland, economists advising the government have called for the introduction of moderate tuition fees.³⁵

Rather than focusing on the less well-funded institutions and the neediest students in the higher education system, the U.S. rescue package has aggravated existing disparities.

At the other end of the spectrum, the case of the United States demonstrates the danger of not maintaining a healthy balance among the various funding sources. During the four decades since the end of World War II, public colleges and universities drew most of their revenues from a mix of federal and state contributions. Since state governments started to decrease their share in the 1980s, public institutions have been forced to rely more on tuition income, fund-raising, and contracts with private sector firms. This trend has accelerated brutally since the 2008 financial crisis, with dramatic consequences for the most vulnerable groups in American society.

Low-income and first-generation students, immigrants, and people of color will be more likely to delay going to college or to drop out. Because colleges will charge more and families will have less, many more students will take out loans and, with diplomas or without, end up in default, widening economic inequality and the racial wealth gap. For many poorer communities, colleges have ... protect[ed] them from the erosion of globalization and economic disruption. When their schools close, it will further social decay (Carey, 2020).

Rather than focusing on the less well-funded institutions and the neediest students in the higher education system, the US rescue package has aggravated existing disparities. The public community colleges that enroll close to 40 percent of all students received only 27 percent of the emergency funds going to higher education.

One of the most devastating consequences of the public health crisis and the accompanying economic downturn for colleges and their students could be the way in which it exacerbates the inequality already present in the system. The fact that this widening of the gulf could come at a time when the nation is grappling with systemic racism and the institutions that perpetuate it is particularly troubling (Berman, 2020).

Looking forward, among the Democratic party's proposals to address this crucial equity challenge is a plan to offer free undergraduate education to all, following the model of many Western European and Latin American countries. However, according to Casey (2020), this would result in an unfair tax subsidy to children of wealthy families. Casey proposes instead a sort of "Targeted Free Tuition" system similar to those recently introduced in Chile and South Africa, whereby all public colleges and universities, as well as private nonprofit institutions, would be eligible to receive much higher levels of federal and state subsidies in order to give free tuition to low-income students. At the same time these institutions would charge a capped amount (\$10,000) to students from wealthier families without any price distinction between in-state and out-of-state students.

Many observers see the injection of significant levels of public resources into the community college system as an indispensable policy lever for economic recovery and improved equity since they have a higher proportion of low-income and minority students than four-year universities. There is a feeling that the lack of financial resources after the 2008 financial crisis prevented community colleges from playing fully their role as main training channel for unemployed workers and workers seeking to upgrade their skills to adapt better to the changing labor market.

Millions of laid-off American workers need new careers, yet the United States gives much less assistance to job seekers than most other countries. Community colleges could bridge the gap, partnering with employers and innovators in the private sector to train workers for careers that meet local needs and pay middle-class wages. But they will be unable to do so unless Congress provides financial relief to state and local governments. When they are needed most, these two-year public institutions are themselves in desperate financial straits. History is repeating itself. In the last recession a decade ago, lower state tax revenues and budget cuts left community colleges unable to meet demand. Unemployed job seekers turned to for-profit colleges, often with disastrous results (Deming, 2020).

Student aid is at risk in many countries, especially when it takes the form of student loans rather than grants and scholarships. Unlike Australia, England, and New Zealand, which have income-contingent loans that protect their graduates in time of financial difficulty, all the countries that rely on mortgage-type student loans are likely to see soaring rates of non-payment as long as the economic crisis endures. The Canadian, Colombian and U.S. governments announced a halt to all student loan repayments for six months at the onset of the pandemic. While this measure will provide welcome relief to unemployed graduates and those with limited incomes, it will not address the in-built design defect of all mortgage-type student loan schemes, which are highly vulnerable in times of economic crisis when many people lose their jobs and/or experience substantial if not catastrophic income reductions. Moving to an income-contingent loan system is a structural change that countries ought to consider seriously in their quest for more sustainable funding approaches.

Unlike what happened in these high-income countries, few governments of developing nations have been able to provide a sizeable stimulus package to support the higher education sector during the pandemic, except to provide additional funding for COVID-19 research, as happened in Brazil, Colombia, India, Morocco and Nigeria, for instance. More often than not, governments have been compelled to hastily reallocate resources away from the education budget to fund the soaring health expenses. In Kenya, for example, the Commission on University Education shifted the equivalent of US\$2.5 million of its development fund to the COVID-19 emergency fund. The Treasury has already announced a US\$460 million cut to the overall university budget for 2020-21, amounting to a reduction of 26 percent compared to the current budget. In Nigeria, the federal government has indicated its intentions to take back about US\$130 million from the education sector in support of the country's pandemic response. In Pakistan, the governing body of the Higher Education Commission warned in June 2020 that the sudden cut in the higher education budget by another US\$36 million equivalent could result in "dismantling the country's higher education system by forcing the shutdown of universities."³⁶ Even within the education sector, many governments might be inclined to move funds away from the university sub-sector towards the lower levels, as the needs of younger students are considered more pressing.

Indonesia stands out as one of the few developing countries that has managed to free up resources in support of

higher education. The Minister of Education recently announced a US\$70 million grant to prevent low-income students from dropping out. Eligible students in both public and private universities are allowed to defer tuition fee payments or can use the subsidy to pay their tuition fees. There has also been a reduction in fees for last-year students (Yamin, 2020). In the Philippines, the public Land Bank is offering loans of up to the equivalent of US\$6,000 dollars under its "study-now-pay-later" program meant to cover students' tuition and assist parents whose income has been severely affected by the pandemic.³⁷ Thailand recently announced a one-year project to subsidize the salaries of new graduates (Daorueng, 2020). The Colombian government also announced a US\$260 million program to help needy students directly or through the national student loan agency (ICETEX). But this contribution may not be sufficient to alleviate the economic stress faced by students and their families.

Moving to an income-contingent loan system is a structural change that countries ought to consider seriously in their quest for more sustainable funding approaches.

Since the pandemic hit, the government of President Iván Duque had made "an effort without precedent" to help students, investing the equivalent of US\$260 million, said María Victoria Angulo, the country's education minister. Some public universities have been able to cover tuition for all students, at least for the semester. Many have distributed tablets or SIM cards. Some private schools, funded by tuition from wealthier students, have been able to limit dropout. But large numbers of students are slipping away, a loss that could turn into explosive resentment in months to come (Turkewitz, 2020).

The various direct student aid programs launched by countries have not always gone smoothly. Australia and the United States have deliberately excluded international students. In keeping with his "America First" doctrine, President Trump has also left undocumented students (children of illegal immigrants) out of the US\$6 billion

aid package to help students with food and housing expenses. In Germany, where two-third of the students usually work to pay their living expenses, the student unions have been calling for the Minister of Education’s resignation over delays in providing financial assistance and the lack of adequate support. Similarly, in the United Kingdom, observers have warned that the rules of the statutory sick pay system could penalize students with COVID-19 or those who had to self-quarantine and have lost their employment as a result.

An interesting debate has arisen in Chile after the introduction of a bill that would allow students to defer their tuition fee payments during the entire duration of the pandemic. In a higher education system where tuition fees account for 60 percent of the income of private universities and 35 percent at public universities, university leaders have complained that this measure aimed at bringing relief to middle-class students—low-income

students are already exempt from paying fees since the introduction of the Targeted Free Tuition scheme in 2017—could precipitate their financial downfall (Hurtado, 2020).

To summarize, Table 6 presents the range of measures observed in the first six months of the pandemic. Of concern is the fact that most of the positive measures are of a short-term nature. Considering that the global economic crisis that is likely to accompany or follow the pandemic could occasion large shortfalls in government revenues and household incomes, translating in turn in budget cuts for higher education and lower demand, governments should also address the medium- and long-term implications of the crisis. The poorest nations in the developing world that are dependent on international assistance will be doubly impacted, first by the local economic crisis, and second by the reductions in donor contributions reflecting the crisis in industrial countries.

Table 6: Financial measures from governments around the world

Type of Measure	Examples	Comments
Reduction in Budget for Public HEIs	Many African countries, Brazil, Pakistan	Access & quality at risk
Additional Budget for Public HEIs	Colombia, Japan, Nordic countries, Singapore	Business continuity & protection of employment
Emergency Student Aid	France, Indonesia	Protection of vulnerable students
Reduction in Tuition Fees	France, South Korea	Protection of vulnerable students
Delayed Fee Payments	Chile	Protection of vulnerable students but hard on university finances
Delayed Repayment of Student Loans	Canada, Colombia, United States	Temporary relief for unemployed graduates
Paid Internships for Students & Graduates	Hong Kong, Singapore	Boosted employment chances for recent graduates
Negotiated Rates for Internet Access	African countries	Support for low-income students

An important policy aspect worth revisiting in the wake of the COVID-19 pandemic is the traditional competitive approach to research funding and research production that privileges publications in prestigious scientific journals over research impact and social relevance. This approach discourages collaborative work across institutional walls and open science efforts. The perverse effects of “public or perish” were already highlighted in the first part of this report with the German example of unfortunate competition between two health research teams in Munich. Similar examples can be found in other countries. In France, for instance, the segmentation of research centers and health databases linked to hospitals, universities and national research institutes has set genomic sequencing of COVID-19 back compared to the United Kingdom, even though French researchers had taken the lead at the beginning of the pandemic. But the prevailing competitive research culture, which favors publications in academic journals over achieving results that could directly help the public health situation in the middle of the epidemic, has been a hindrance.

An important lesson arising from the present crisis is the need to shift more purposefully and systematically to multidisciplinary and multi-institutional research.

French researchers seem reluctant to use a cutting-edge tool that would answer important questions about the epidemic. This tool, which is not new, is the sequencing of the genome of the new coronavirus. ... Since March, the United Kingdom has sequenced 35,965 genomes. France only 559. ... At the beginning of March, the United Kingdom invested more than €22 million to organize the sequencing on a national scale by federating various centers under the banner of the COVID Genomics United Kingdom Consortium. In France, “it is poorly coordinated,” complains Jean-Michel Pawlotsky, head of the biology department at the Henri-Mondor hospital in Créteil. Researchers keep their data secret in order to publish articles focusing on the themes that interest them.

This situation shows another difference with the British, who are said to be more inclined to “share.”

During the race to sequence the human genome, the British Nobel Prize winner John Sulston had argued successfully, and against the American vision, for free access to sequences and against the patenting of genes. This opinion still seems valid in his country, while France remains cautious.

The French “calculation” of continuing to favor publications to the detriment of greater sharing of information might not pay off so much: academic journals, seeing the small size of the sample, will perhaps favor researchers with better resources and more genetic sequences.

One of the dreams is to develop public health policies based on information from viral genomes ... We are getting closer. We are able to infer several epidemiological parameters, such as the reproduction rate, or to identify chains of transmission through genomes. But it is not yet in real time and the tools at our disposal have been developed for research, not for clinical use, according to François Balloux from University College London (Larousserie, 2020).

In Ireland, which has a small higher education system reflecting its the small population size, no less than three universities (Dublin City University, Trinity College, and University of Limerick) embarked separately on COVID-19 research instead of pooling their talent and resources.

An important lesson arising from the present crisis is the need to shift more purposefully and systematically to multidisciplinary and multi-institutional research. It is clear that research on COVID-19 and its social impact involves at the very least researchers from medicine, epidemiology, mathematics, history, psychology, and ethics. The same applies to the grand challenges faced by all societies, as captured by the Sustainable Development Goals adopted by the United Nations in 2015.

As part of making higher education and research systems more resilient and more relevant to the needs of society, the promotion of Open Science could be pursued seriously as a policy priority in the post-pandemic era. The paradigm shift embodied by Open Science, which has been on the agenda of the European Commission and a number of European countries for several years, refers to the rapid development of interactive and collaborative modes of knowledge acquisition, generation and dissemination, facilitated by networks that rely on modern information and communication tools. As a matter of fact, COVID-19 has pushed the scientific community to work together in unprecedented ways.

While political leaders have locked their borders, scientists have been shattering theirs, creating a global collaboration unlike any in history. Never before, researchers say, have so many experts in so many countries focused simultaneously on a single topic and with such urgency. Nearly all other research has ground to a halt. ... Normal imperatives like academic credit have been set aside. Online repositories make studies available months ahead of journals. Researchers have identified and shared hundreds of viral genome sequences. More than 200 clinical trials have been launched, bringing together hospitals and laboratories around the globe.

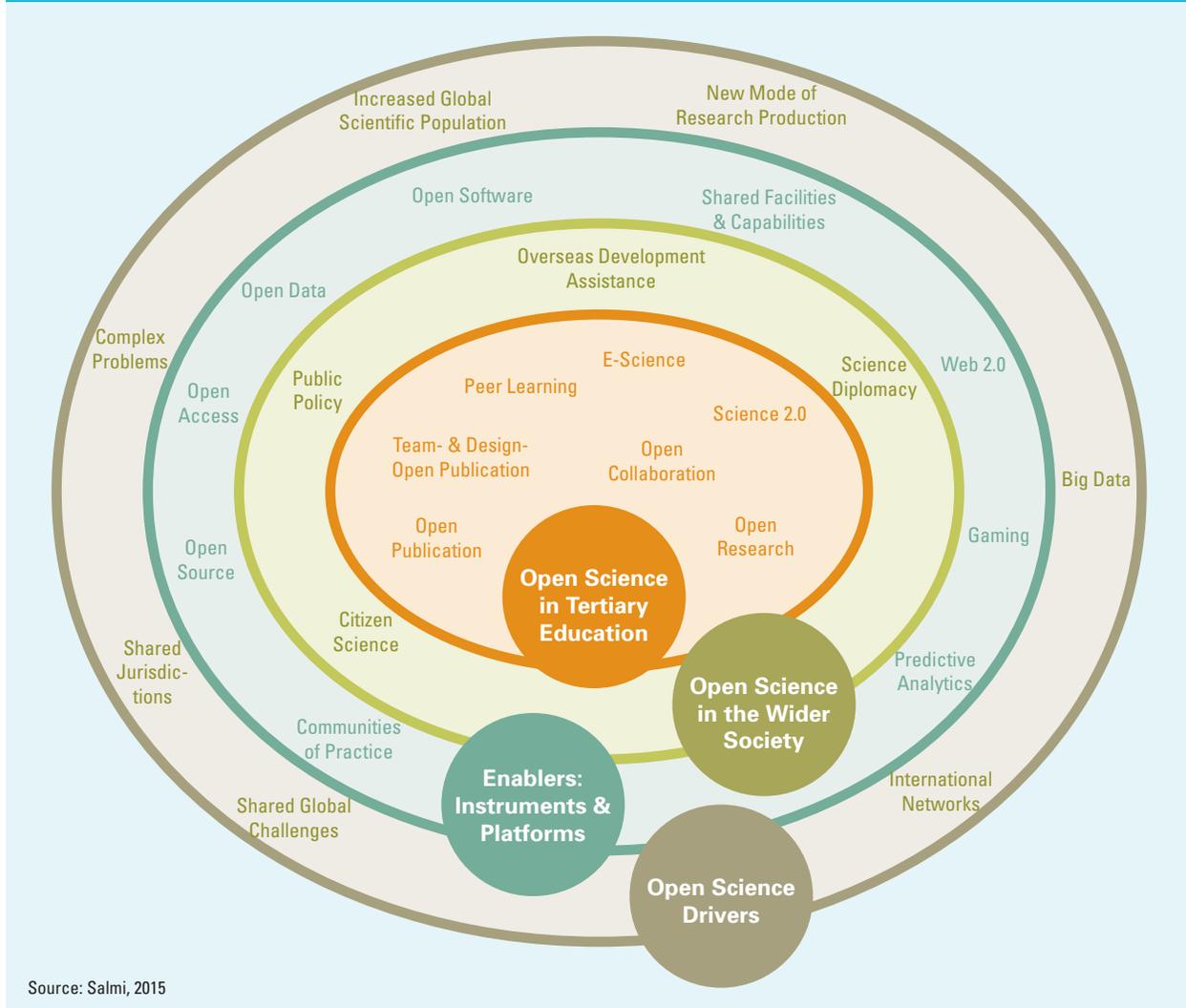
The pandemic is also eroding the secrecy that pervades academic medical research, said Dr. Ryan Carroll, a Harvard Medical professor who is involved in the

coronavirus trial there. Big, exclusive research can lead to grants, promotions, and tenure, so scientists often work in secret, suspiciously hoarding data from potential competitors, he said. “The ability to work collaboratively, setting aside your personal academic progress, is occurring right now because it’s a matter of survival.”

One small measure of openness can be found on the servers of medRxiv and bioRxiv, two online archives that share academic research before it has been reviewed and published in journals. The archives have been deluged with coronavirus research from across the globe (Apuzzo and Kirkpatrick, 2020)

Figure 9 proposes a representation of how the various dimensions of Open Science are connected and interact.

Figure 9: Open science and related phenomena



Source: Salmi, 2015

Moving towards an Open Science mode, which would allow for more collaborative forms of research, can only happen on a large scale if research funding agencies agree to modify their allocation methods and encourage grant applications reflecting partnerships across institutions and countries.

Another, equally important change would be the transition to open access publishing of scholarly articles and books, defined at the 2003 Berlin Conference on Open Access to Learning as the “free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself.” The main advantage of open access is to reduce the time between scientific discoveries and advances and their dissemination in the public space. By removing the

The main advantage of open access is to reduce the time between scientific discoveries and advances and their dissemination in the public space.

price and geographical obstacles preventing the free and fast circulation of knowledge, this has the potential of improving the efficiency and effectiveness of research and amplifying scientific collaborations across institutions and countries. A recent study sponsored by the European University Association identified two possible models to achieve this objective: one based on publisher-owned platforms, and one on community-owned platforms (van Barneveld-Biesma *et al.*, 2020).

One of the world’s leading publishers, Elsevier, has provided an example by making extensive collections of relevant scientific publications and material available free of charge for the duration of the pandemic through its Novel Coronavirus Information Center (Schoonbee, 2020). This new posture departs from previous episodes that have pitted Elsevier against the academic world. In 2014, for example, Dutch universities clashed with the

international publishing house over a demand to have their scientific production become open access by 2024 (Jump, 2015). In 2015, South African universities joined an international movement of thousands of universities around the world that signed the Confederation of Open Access Repositories petition against the new rules imposed back then by Elsevier (Wild, 2015). Cambridge University Press has provided free access to a wide range of books, journals and learning materials for students, teachers, and researchers impacted by COVID-19.

Capacity Building for Connectivity and Online Education

The second type of interventions that countries have implemented aims to increase connectivity for higher education institutions and their students, while helping colleges and universities to build their capacity to deliver online education in an effective manner. Governments in Sub-Saharan Africa have tried to strengthen broadband capacity through the National Education Research Networks (NRENs), which are specialized internet service providers dedicated to the research and education communities within each country. NRENs provide stable backbone connectivity, facilitate internet access for all higher education institutions and their students, host LMS and collaboration tools, and offer technical support. Some have also provided subsidized internet packages for university students and tried to reinforce campus network infrastructure.

Cameroon recently announced a partnership between the Ministry of Higher Education and the country’s main telecommunications company, CAMTEL, to provide faster internet to all universities. A few governments have also attempted to improve continuity in power supply, another major challenge faced by the higher education sector in several countries of Sub-Saharan Africa, Nigeria, and Sudan for instance. The government of Ghana has taken the lead in organizing training activities to support universities in their move to online education in partnership with the United Kingdom’s Open University. In partnership with Microsoft, Egypt launched its first digital platform to enable distance learning at the country’s universities.³⁸

But these efforts have not been sufficiently systematic and effective, and Africa remains the only region in the world with under-developed NRENs. The results of a recent survey conducted by eLearning Africa and

EdTech Hub networks found that, by and large, African “universities were left to their own devices and their responses varied according to their resources and resourcefulness.”

According to Albert Nsengiyumva, the executive secretary of the Association for the Development of Education in Africa, or ADEA, COVID-19 triggered a new reality which deepened inequality and exclusion in African education systems... Whereas the pandemic may have unexpectedly presented opportunities to improve the uses of and access to technologies in learning, the new report argues that more online learning is still likely to increase inequality and disadvantage those students from poor households. Based on experiences from the crisis, 74 percent of respondents said technological advances were likely to create wide digital learning disparities between urban and rural areas... The poor and disadvantaged students will be greatly affected compared to their more privileged peers (Kigotho, 2020b).

Similarly, in South Asia, governments have tried to bridge the digital gap in support of their higher education system. The Indian Ministry of Human Resources Development has set up NPTEL, a platform that offers digital resources for STEM programs.³⁹ The Government of India also set up a National Educational Alliance for Technology (NETA) as a Public-Private Partnership aiming to put educational software and products on a single platform. Authorities in the southern state of Kerala announced that they would provide extra bandwidth across the state to support online learning for all students during the COVID-19 outbreak. In Pakistan, the Virtual University has provided support to all the universities that switched to online education. In Bangladesh, the University Grants Commission and BdREN, the national education research network, teamed up to support universities during the transition to online education through capacity building activities and a hotline to help students facing connection difficulties. Similarly, in Sri Lanka, the University Grants Commission worked with the Telecommunications Regulatory Commission to seek support from the country’s internet providers.

Several Latin American countries have also invested to support their universities’ move to online education. The Colombian Ministry of Education, for instance, created CO-LAB, the Laboratory for Innovation in Higher Education, a collaborative platform where universities can share good pedagogical practices and digital resources for online teaching.⁴⁰

Even industrial countries with a good broadband network have felt the need to enhance their infrastructure.

These interventions can have positive effects, but only if governments refrain from using the health crisis as a pretext to enforce internet shutdowns and censorship—a growing practice to muzzle political dissent in many non-democratic countries—as observed earlier.

Even industrial countries with a good broadband network have felt the need to enhance their infrastructure. France’s Minister of Higher Education announced a €32 million investment in digital infrastructure in September 2020 as part of the nation’s economic recovery package, complementing the €18 million spent over the summer to help universities strengthen their IT systems and train their instructors. Recognizing that access to the internet has been highly unequal, the Italian government announced an €85 million aid package to support distance learning and improve connectivity in isolated areas. Austria allocated €50 million to facilitate the transition to online education. The German State of Hesse invested more than €110 million in digitalization in April 2020, coming on top of the €40 million of additional funding given to universities in March.

Flexibility in Quality Assurance and Assessment

The closure of colleges and universities and the switch to online education have made assessment of the learning progress of students much more difficult. They have also prevented quality assurance agencies from carrying out their regular evaluation and accreditation visits. For these reasons, efforts to bring greater flexibility in the application of quality assurance criteria and assessment methods have comprised a third type of national-level interventions since the beginning of the pandemic. Many quality assurance agencies have suspended deadlines for accreditation and program registration processes, postponed accreditation visits or switched to “virtual visits,” and relaxed the quality assurance criteria to support the rapid transition to online education.

While some countries have issued detailed recommendations to guide colleges and universities, the general trend has been to undertake expedited reviews for “general approval” to offer distance education, or to issue blanket approvals of the new approaches and delegate responsibility for establishing quality online programs to the higher education institutions themselves. In preparation for the fall semester, the New England Higher Education Commission (USA) designed a light approval process to get all of the pertinent information, minimize paperwork, and take advantage of what institutions have

learned from moving quickly online. To protect the students, the Commission also undertook a screening of all higher education institutions’ expected enrollment and finances in order to identify which places were in danger of sudden closure. The governors of several US states—Maine being among the first—issued executive orders to release training funds without adhering to the usual review requirements as part of an effort to encourage online training of health specialists and other workers deemed essential during the pandemic.



In Spain, the Minister of Education issued recommendations to ensure transparency and equal opportunities among all students. These included the need for each university to establish some general rules that would guide decisions about alternative assessment methods within each faculty and program, in consultation with the students. The recommendations also suggested to delay examinations for programs that usually require practical exercises (art or sport for instance) or lab experiences (ABC, 2020). The Cyprus Quality Assurance Agency delegated to universities the right to apply alternative assessment methods and graduation requirements, which allowed for a relatively smooth completion of the academic year.

But flexibility has not been the rule everywhere. India's University Grants Council, backed by the Supreme Court, has insisted that all final year examinations must take place as normally planned, even though many stakeholders have argued that the pandemic did not allow for the safe organization of in-person examinations and that online examinations would penalize the many students lacking a good internet connection (Niazi, 2020c). The Spanish government enlisted thousands of final year medical and nursing students to help fight the pandemic but did not consider transitional arrangements so that they could still complete their graduation requirements, unlike what happened in Italy, for instance, where measures were taken to allow final year students to graduate (Martuscelli, 2020). In Sweden, the Minister of Education has pushed for holding the university entrance examination against the views of the Swedish Council of Higher Education and all university rectors, the latter being worried about health safety. This is, however, in line with the government's cavalier attitude towards health risks to the population since the beginning of the pandemic (Myklebust, 2020). Colombian university presidents have reported that the lack of responsiveness of the Ministry of Education (in charge of higher education) in making its standards more flexible has been a major obstacle in proceeding with the transition to online education (Observatorio de la Universidad Colombiana, 2020b).

Keeping things simple is one of the lessons emerging from the pandemic with respect to the adoption of special measures to make quality assurance and assessment more flexible. This is best illustrated by contrasting how France dealt with the national end-of-high school examination (Baccalauréat) with the A-levels debacle in the United Kingdom, as both countries could not hold their high-stake examinations in the middle of the COVID-19

crisis. In the first case, the Minister of Education decided to suppress the traditional in-person examination and have the baccalaureate awarded on the basis of the grades obtained by pupils during the first two semesters of the academic year. While this led to a higher than usual pass rate (91.5 percent versus 77.7 percent in 2019), it helped reduce stress and anxiety among pupils and their parents. In the second case, the United Kingdom's Office of Qualifications and Examinations Regulation (Ofqual) relied on a sophisticated algorithm to adjust the grade predictions that teachers had been required to prepare, for fear of compromising the usual stratified admission distribution that perpetuates the social hierarchy among British universities. However, the algorithm turned out to be highly class-biased in favor of students attending elite private schools.

Keeping things simple is one of the lessons emerging from the pandemic with respect to the adoption of special measures to make quality assurance and assessment more flexible.

Nearly 40 percent of students ended up receiving exam scores downgraded from their teachers' predictions, threatening to cost them their university spots. Analysis of the algorithm also revealed that it had disproportionately hurt students from working-class and disadvantaged communities and inflated the scores of students from private schools... But the root of the problem runs deeper than bad data or poor algorithmic design. The more fundamental errors were made before Ofqual even chose to pursue an algorithm. At bottom, the regulator lost sight of the ultimate goal: to help students transition into university during anxiety-ridden times. In this unprecedented situation, the exam system should have been completely rethought (Hao, 2020).

In the same spirit as the approach adopted by the French government, many governments opted for favorable measures to organize university admission for the new academic year. Flemish universities, for instance, will compare the results of incoming students with their scores in the previous two years. If their average during



the pandemic year is substantially lower, the scores will be adjusted upwards (The Brussels Times, 2020). The Commission on Higher Education in the Philippines also instructed all universities to be more lenient during the online education period, although university and college leaders have complained about the risk of lowering academic standards.

A positive outcome of the COVID-19 crisis has been a more favorable view of online education, which, in many countries, had been considered as a second-rate form of education, often subject to substantial constraints and strict regulations. In Peru, for example, the new higher education law passed in 2014, specifically disqualified professors who had obtained their doctoral degrees through online education from becoming faculty deans. All South African universities—with the exception of UNISA the dedicated distance education university—were explicitly prohibited to have online teaching activities until 2014. Referring to the world-wide switch to digital education during a webinar organized by the US Council for Higher Education Accreditation, a professor at the Indonesia Open University observed that “the coronavirus achieved in 25 days what the proponents of online education did not succeed in doing in 25 years” (CHEA, 2020). Similarly, in the Arab world, the COVID-19 outbreak has brought about a shift in mindsets towards online education in a region that had been reluctant to embrace digital education until then (Faek, 2020).

Summary of Policy Lessons at the National Level

- *COVID-19 economic relief packages should protect employment in the higher education sector and provide emergency financial aid to all needy students.*
- *Public funding for higher education should prioritize short-duration training programs with flexible pathways and scaffolding of credentials, such as the ones offered by community colleges and technical institutes, as they provide opportunities to many low-income and minority students, and can play an important role in boosting economic recovery through relevant training for re-skilling and up-skilling in close partnership with employers.*
- *Countries whose colleges and universities have a high level of financial dependence on fee-paying students, especially international students, should work on reducing this element of vulnerability.*
- *Student aid systems that include mortgage-type student loan should consider switching to income-contingent loans.*
- *Research funding agencies should encourage Open Science and collaborative projects across institutions and countries that could pool talent and resources to foster cooperation and multidisciplinary in the resolution of societal challenges.*
- *In developing countries where internet access is unequal and expensive, governments need to strengthen the broadband infrastructure and eliminate the digital gap among higher education institutions and students.*
- *Ministries in charge of higher education should support capacity building for online teaching, learning and assessment.*
- *Assessment methods and quality assurance approaches should adjust flexibly to the difficult conditions faced by higher education institutions and their students.*



In 1665, Cambridge University closed because of the plague. Isaac Newton decided to work from home. He discovered calculus and the laws of motion. — Paddy Cosgrave, Chief Executive of Web Summit

There's this assumption that the best way people learn is by sitting quietly in a class for 80 minutes at a time, and then regurgitating facts every four weeks on exams. In fact, that's not how most people learn. I hope that we can take these disruptions—and this need to embrace technology in new ways—as an opportunity to open up education to people who learn differently — Professor J. Smith, Carnegie Mellon University

Institutional Policies

Paddy Cosgrave, Chief Executive of Web Summit
This review of policies adopted by colleges and universities to mitigate the effects of the pandemic focuses on the following aspects: (i) educational responses, (ii) measures to ensure research continuity, (iii) changes in governance, (iv) financing model, and (v) equity-focused interventions.

Innovative Educational Approaches and Models

The first step to ease the transition to online education has been to offer crash courses—to academics and students alike—in the use of digital platforms and application of effective techniques for online teaching and learning. Institutions with fully functional teaching and learning services have found themselves better prepared to support their entire academic community in this transition, as have those that had a strong digital capacity (Box 3) or a well-thought transition plan (Box 4). Many colleges and universities have also seen unprecedented levels of internal cooperation and experience-sharing among instructors across academic departments, schools and faculties who would normally not talk to each other.

In many countries, the pandemic has also provided the opportunity for increased collaboration among colleges and universities that would otherwise be competing with each other, facilitated by the proliferation of software that facilitate collective work. At the instigation of the Ministry of Higher Education, sometimes led by national university associations, and sometimes arising spontaneously, some higher education institutions with good online education capacity have reached out to help less-prepared institutions in their region or country, and/or have created collaborative platforms for sharing good practices for teaching online. In Mexico, for instance,

nine universities joined forces to set up a website that will host free digital resources for the entire educational community in the country and beyond.⁴¹

The experience of the first six months of the COVID-19 crisis has revealed four sets of good practices related to the transition to online education. The first is the realization that virtual education is not essentially about technology. It is not a matter of having a great digital library in place or acquiring the best Learning Management System, videoconference platform, or AI-driven software. These are just convenient tools designed to facilitate the online education experience. But at the core of a successful online education experience is the adaptation of the curriculum, pedagogy, and assessment in the most suitable way to fulfill the mission of the institution and respond to the characteristics and needs of its students.

Second comes the recognition that teaching online is not about recording a traditional lecture and posting it on the institutional website, or using a videoconference platform to deliver the same lecture online as the instructor would give on campus. Effective online education requires teaching and learning methods that engage the students dynamically in an enjoyable and stimulating education experience. The present crisis has been a great opportunity to scale up innovations allowing for a more active, interactive, and experiential education delivery modes that few higher education institutions had tried before the pandemic. Among these student-focused approaches are problem-based learning, self-learning, peer-learning, team-learning, the flipped classroom, and the use of simulations and games that can be used separately or in a complementary manner (Salmi and Laverde, forthcoming).

Problem-based learning (PBL), pioneered by MacMaster University in Canada, Maastricht University in the Netherlands, and Aalborg University in Denmark, is a

Box 3: A Model for Latin America?

At the Tec de Monterrey in Mexico, several cutting-edge technologies for education had been designed and implemented for 30 years, from satellite broadcasts, internet courses, apps, and recently virtual reality and holograms. However, when the pandemic was declared, not all instructors had the skills and competencies to adapt their courses to the digital mode.

Joaquín Guerra, vice-rector for Academic and Educational Innovation, explained that, in the face of the mandatory quarantine due to COVID-19, the Institution has achieved academic continuity thanks to its Flexible and Digital Model, which has allowed it to continue serving its 90,000 students with 55,000 synchronous sessions per week.

“The Flexible and Digital Model of the Tec de Monterrey made it possible to maintain collaboration and communication, but above all, it facilitated academic continuity to ensure that students and teachers resumed their classes and had good experiences even in a complex situation.”

“The biggest issue of this contingency was the training of teachers who were not familiar with distance education. The transition had to be fast, in a week, since the Tec was the first Mexican university to suspend face-to-face classes.”

The vice-rector indicated that the training involved the delivery of 290 workshops, almost 70,000 hours of preparation, and the participation of 1,715 staff members providing support and technical advice. “A month after starting the transition, 180,000 class sessions had already been taught, with 99 percent of cases without incidents.”

Joaquín Guerra mentioned that in order to achieve the success of academic continuity, the most important factor has been the Tec community: collaborators, technicians, pedagogical advisers, but especially the academics. “They have been the equivalent of doctors in hospitals, that is, heroes teaching classes and solving all kinds of problems. Many have learned as they went, but the classes have continued because they have trained and adapted; many of them had never handled the technology as they have now.”

Source: Ramírez, 2020.

method in which students learn about a topic and acquire competences by working in groups to solve open-ended problems. The rationale of this approach is that it raises students’ motivation by challenging them to solve a problem, thereby making the learning experience more stimulating and effective. As they are confronted with a new challenge, the students must take stock of the information, knowledge, and tools they must learn to be able to find a solution. PBL is generally organized as a group learning activity.

Self-learning can be organized in many ways, as a complement to online teaching or as a self-standing mode of learning, using digital resources available at the students’ institution of higher learning or on the internet to enhance their educational experience, for example in the form of Massive Open Online Courseware (MOOCs).

A number of institutions have introduced peer learning, pioneered by Eric Mazur, Harvard University’s dean of applied physics, as an innovative way of engaging students in active learning. Activities involving peer learning and instruction can take place inside or outside the classroom. In-class activities can be referred to as peer instruction while out-of-class sessions can be described as peer learning. During synchronous class time, professors following a peer instruction approach may have their students working in teams, doing oral presentations, leading discussion sessions or actively engaging in structured interactive tasks.

Team-Based Learning (TBL) is an innovative teaching framework allowing for greater student engagement, individual accountability in a group learning setting and deep learning. TBL is composed of four practical elements: (i) strategically formed, permanent teams; (ii) readiness assurance through immediate feedback; (ii) application activities that promote critical thinking and team development; and (iv) peer evaluation.

Flipped learning, which embodies self-learning, peer learning and group learning, is a strategy where students are required to review, through readings, videos, podcasts and simulations, new material before attending class. The students are not expected to fully understand and assimilate the material. But introducing students to new content before class provides instructors the opportunity to address students’ questions during class time, identify students’ misconceptions while they discuss or solve problems, and involve learners in activities such as group problem solving where they can engage at a deeper level. Basically, in a flipped classroom model,

instructors do not teach the curriculum as such, but guide the students on their own learning path.

Finally, a number of institutions have adopted computer-based and virtual reality simulations and “serious games” as platforms conducive to the acquisition of complex skills in an immersive learning environment that is fun and recreates real-life settings. Unlike law schools that have traditionally used mock courtrooms as a physical environment where students learn through role-playing, today’s simulations and serious games use digital environments specifically designed for training purposes. In the case of serious games, for example, the basic idea is to adapt a game format to academic life content, for example by getting students to solve a mystery, pursue a quest, look for hidden clues, and accumulate rewards and badges until they reach a successful outcome, as defined by the rules of the game.

In addition to the “entertainment” dimension, which transforms the learning process into an attention-grabbing experience for the student, the digital platform makes it much easier for instructors to collect and analyze data on the students’ learning process and results, such as time spent to make decisions, frequency and type of communication with other participants, choices for problem-solving, etc. (Deegan *et al.*, 2018).

The third important consideration is the need to fully align learning-assessment procedures and criteria with online curricular and pedagogical approaches. Higher Education institutions all over the world have explored many forms of alternative assessment (Box 5).

Many colleges and universities have moved to a pass/fail approach, eliminating grades for the rest of the academic year. In the United States, close to 32 percent of institutions fall into this group, according to the NILOA survey mentioned earlier. Others, for example the University of Delhi and Anahuac University in Mexico, have allowed their students to take open-book / open-internet examinations to alleviate the level of stress linked to assessment during the pandemic, and through this approach, give students the opportunity to demonstrate their critical thinking and problem-solving abilities, as well as develop ethical behaviors. Irish universities have set up a system of self-certification of online exams based on trust, relying on the students’ self-assessment of their progress towards achieving expected learning outcomes.⁴² In China, Tsinghua University, working with other business schools, Blackboard China and Genix Ventures, is at the helm of a collaborative initiative on

Box 4: A Well-Prepared Business School in France

Backed by a 2018-2022 strategic plan in which digital transformation is one of the key levers, the [French] Neoma Management School is planning a 40 percent digital set up for the new academic year. The slogan of Neoma Business School’s 2018-2022 strategic plan is “digital metamorphosis,” supported by a budget of €800 million over five years. An ambitious strategy, illustrated by the creation of new innovative learning spaces: “Augmented Learning Rooms,” “Creativity Rooms,” and “Resources Rooms,” with cutting-edge equipment for all students. Two departments were created in 2018 to carry out these transformations: “digital transformation,” and “innovative teaching,” responsible for implementation... The plan for the 2020-2021 academic year is to have 60 percent of face-to-face lessons and 40 percent of distance learning, for all programs and training levels. “It is about infusing more digital experience in the courses: digital learning, videos, simulations, cases in virtual reality, etc.,” explains the director of innovative teaching ... But hybridization is not only the technological tool. For this to work, an important support and acculturation component must be added, focusing on teachers first.

Source: Piraud, 2020.

what they call “next-generation assessment,” defined as assessment that is “woven invisibly into educational experiences, almost indistinguishable from curriculum, teaching and support” (Coates, 2020).

This work is building shared online assessment resources which are mapped against curriculum frameworks and which will allow institutions to compare themselves to performance standards. Quality standards and checks are built into the system to assure outcomes. Collaboration saves time and money and embeds immense strength and agility into the solution (Coates, 2020). Designing online assessment methods embedded into emerging modes of online teaching and learning takes significant effort, but it is the only way to ensure the quality of learning and validate final evaluations. In this respect, the COVID-19 crisis is a great opportunity to revisit traditional assessment practices and think carefully about the core value and purpose of assessment.

Box 5: Alternative Forms of Assessment

Alternative methods recognize this diversity and present an array of options. First, there are open methods like open-book, open-net and take-home examinations, which require much critical thinking and more content familiarity than in traditional written exams, and less memorization.

Second, there are collaborative methods like small group instruction diagnosis, cooperative experiences, peer-reviews, capstone tools and other online and offline-group simulations. Though the planning and technology deployment needs of such methods are higher, studies suggest the benefits are the same or better than traditional exams.

A third set is based on portfolios. Online and offline portfolios, wiki-based approaches, bundling of short research projects and social media portfolios are examples.

Finally, there are writing-based methods like reflective student essays, articles, dissertations, and multiple-choice question preparation.

Source: Piraud, 2020.

... program assessment activities might usefully be redesigned to invite faculty to reflect on the learning outcomes that are most essential, observe what worked well online, and record what was sacrificed because it could not be reformulated in the shift to remote teaching and learning. Such formative assessments will be invaluable in shaping programs for the (uncertain) next semester and beyond. ... Culturally responsive equitable assessment suggests the benefits of providing students the opportunity to choose from a variety of approaches or design how they will be assessed. This approach could take the place of a uniform exam that does not consider our newly changed circumstances (Kinzie, 2020).

By contrast, higher education institutions that have not modified their assessment systems have indirectly contributed to amplifying the gap between students from well-off families and students who have made the transition to online education without inconvenience and

those from under-represented groups who have struggled because of economic and connectivity barriers. A recent study looking at the entrance examination to Mexico's most prestigious public university (UNAM) reveals that the refusal to change the approach used for the competitive admission examination—organized online this year because of the pandemic—has made it more difficult for low-income students (González, 2020).

One of the most difficult aspects of the online education experience has been teaching and assessing progress in programs involving the mastery of practical competences and skills, notably medicine, nursing, veterinary sciences, architecture, engineering, sport, art, and many other technical disciplines. Professors all over the world have found ingenious ways of reimagining the design projects, lab work or clinical experiences that were an integral part of their course on campus. Some have ordered the necessary science kits, equipment and supplies and have them delivered to their students' homes so that they could continue the experiments and practical work at home, as illustrated by the following vignettes. Others have relied more extensively on software and virtual reality platforms that simulate real life problems and experiences.

Harvard University (Cambridge, USA). When Harvard announced teaching would remain online for the upcoming school year because of the coronavirus pandemic, Marianna Katherine Linz quickly decided that if students couldn't get to the lab, she'd bring the lab to them. The assistant professor in the Department of Earth and Planetary Sciences ordered the supplies and equipment students would need for the climate and atmospheric physics laboratory she teaches in the fall and created kits she will send to them so they can conduct the experiments at home... The effort by the second-year faculty member to reimagine her course is one of many taking place across campus as professors prepare for an unprecedented fall semester. Strategies are varied, but all are the result of thoughtful planning revolving around taking a fresh look at fundamental questions: What are the most important things we want students to take away from this course, and what's the best way to make sure that happens remotely (Siliezar, 2020)?

Olin College of Engineering (Massachusetts, USA). When the pandemic forced Olin's campus to abruptly close, the Quantitative Engineering Analysis (QEA) course was one of many that transformed into a virtual class halfway through the semester. QEA is a pivotal

course for dozens of first-year students that requires solving a series of robotics challenges while learning linear algebra, optimization, physics, multivariable calculus, and vector calculus. It's centered around completing three projects, including building a boat, learning facial recognition software, and programming a mobile robot to accomplish a task... QEA's robot module was redesigned to be done through simulation. "We learned that we could really minimize the use of physical things," says Professor Ruvolo, one of the members of the team of instructors for QEA. In working with students on the simulated robots, Ruvolo got excited about creating a similar situation with the boat project. Typically, students design a boat using a laser cutter and other materials, and now they'll use 3-D printers. "I'd already been exploring using 3-D printed boats as a way to do this module, and these materials can be ordered online and delivered to students' homes" (Olin News, 2020).

Technology Institute of Monterrey, Mexico. In the absence of experiential learning experiences in a physical laboratory, there are alternatives that allow to simulate in detail the behavior of electrical circuits applied in electrical engineering. The purpose of the electronics labs is for students to develop analysis and design skills through the construction of electronic circuits. But what if they suddenly don't have access to these electrical instruments and supplies? How to give practical meaning to the theoretical activities developed in class? With this in mind, we redesigned the labs considering software available online and materials that could be accessed from home. When working with virtual laboratories, class dynamics must be transformed and focused on extending the type and variety of applications that can be developed with the concepts studied in class. The design of exercises can incorporate much more complex elements that allow us to contrast various alternative solutions, explore unconventional proposals and compare them with traditional ones through the use of simulators that allow us to modify parameters and focus on the discussion of the various results obtained (Fuentes Valdéz and Nájera García, 2020).

Higher Technology Institute (Ecole de Technologie Supérieure), Montreal, Canada. In the days following the transition to online education, most professors were able to put in place digital platforms recreating the lab environment, allowing the engineering students to continue their practical training remotely without handling physical hardware or equipment.

For certain courses, the Institute lent material to the students to conduct their experiments at home. For instance, in electrical engineering, the department provided FPGA boards to teach digital systems and microsystems. For the embedded systems course, students can develop drivers remotely and validate their work directly using the equipment available in the laboratory remotely. For example, if the students are programming a driver for a digital camera, they can validate their algorithms on cameras available in the labs exactly as they would in face-to-face mode. If their algorithms work, they are able to see the interior of the laboratory remotely from their home. For other courses, a co-simulation or a digital twin is used. For a manipulator robot course, for example, even if the students do not work directly on the physical robot, they can program the robot exactly as they would if they were in the lab. The validation is done on the digital twin accessible remotely by all students.

A growing number of colleges and universities have turned to big data and predictive analytics to identify at-risk students early on and pinpoint the areas in which these students might require extra support.

However, not all institutions have been able to provide replacement solutions for lab classes and clinical work, and many students all over the world have missed out on the practical part of their learning, for example in programs as diverse as welding, nursing, dental hygiene.

Finally, many institutions have found it indispensable to establish, increase, or strengthen their academic and psychological support systems for the students who have struggled to adjust to new teaching and learning approaches—not to forget their fears and concerns about the pandemic and the difficult economic conditions brought about by the health and financial crisis. A growing number of colleges and universities have turned to big data and predictive analytics to identify at-risk students early on and pinpoint the areas in which these students might require extra support. Universities in Malaysia



have set up a “buddy system” to detect depression, urging students to be on the alert for signs of emotional distress among fellow students.⁴³

In many countries, colleges and universities have also been innovative in imagining new ways of conducting internationalization activities in a virtual mode. For example, the Association of Pacific Rim Universities (APRU), a network of 55 universities in the Americas, Asia, and Australasia, has launched the Virtual Student Exchange Program to connect students with peers from around the world to learn new knowledge and skills and exchange ideas. Led by the Chinese University of Hong Kong, the program allows students to take academic

courses and participate in co-curricular programs without the need to leave home. It makes international education accessible to all students by “providing an immersive virtual student exchange experience through digital technologies and platforms.”⁴⁴ Among the most frequent practices in virtual internationalization, adopted by Latin American universities during the pandemic, are so-called “mirror classes” involving students from several universities at the same time, cultural semesters, online language and conversation clubs. Similarly, the IAU survey revealed an increase in virtual mobility and collaborative online learning as an alternative to physical mobility among 60 percent of the participating universities (Marinoni, 2020).



The best reason to go to college: to learn that the world is more than the issues that divide us. — Pico Iyer

Research Continuity and the Enhanced Scientific Role of Universities

In the United States, the prospects for doctoral education are grim in the medium term. Universities have announced that more than 50 doctoral programs in social studies and the humanities will not admit any new students in fall 2021.⁴⁵ This is likely to slow down the pipeline of new graduates in years to come and reduce the research output of many institutions.

While research funding has been substantially reduced for a large number of programs and projects in the middle of the pandemic, many governments have commissioned universities to participate in medical and clinical research on COVID-19 treatments and vaccines. Some have also financed research on the social implications of the crisis and needed changes in public health planning. Beyond the medical aspects, universities will undoubtedly play a substantial role in the economic recovery phase through relevant research in support of firms looking to innovate their products and services and through the training and retraining activities indispensable to help companies adapt to new production conditions, notably in the digital economy.

However, the strong contribution that research universities can make is conditional upon governments recognizing and respecting their key scientific role. In the middle of the 2020 pandemic, it is sadly ironic to observe that

the two nations in the world with the highest numbers of COVID-19 deaths are the United States (#1 in the world; 4 percent of the world population but 21 percent of COVID deaths) and the United Kingdom (# 4). These are the countries with supposedly the best universities in the world, according to the global rankings, and the greatest number of Medicine Nobel Prize winners in the past century (94 and 28, respectively). What has happened with these two countries illustrates vividly the total disconnect between scientific power and actual policy action, and the failure of leading universities to construct bridges between the world of scientific knowledge and the political, social, and cultural arenas.

This unusual situation has provoked scientists who normally stay outside the political realm to make official statements lambasting ignorance that might have prevailed in the Middle Ages but is not tolerated, let alone disseminated, in the 21st century. An example is a joint declaration by the president of the National Academy of Sciences and the National Academy of Medicine in the United States.

As advisers to the nation on all matters of science, medicine, and public health, we are compelled to underscore the value of science-based decision-making at all levels of government. Our nation is at a critical time in the course of the COVID-19 pandemic with important decisions ahead of us, especially concerning the efficacy and safety of vaccines. Policy-making must be informed by the best available



evidence without it being distorted, concealed, or otherwise deliberately miscommunicated. We find ongoing reports and incidents of the politicization of science, particularly the overriding of evidence and advice from public health officials and derision of government scientists, to be alarming. It undermines the credibility of public health agencies and the public's confidence in them when we need it most. Ending the pandemic will require decision-making that is not only based on science but also sufficiently transparent to ensure public trust in, and adherence to, sound public-health instructions. Any efforts to discredit the best science and scientists threaten the health and welfare of us all.⁴⁶

To mirror the proposal to sustain Open Science at the national level, universities will need to adopt innovative funding practices, building on recent developments in this field. In the search for funding mechanisms aligned with the spirit of Open Science, some academics have proposed radically different methods for assessing research excellence and determining the allocation of research resources. In 2012, the University of Michigan introduced a new research funding model, called MCubed, which provides instant funding to innovative research ideas evaluated in a collaborative mode (Box 6). More recently, a group of researchers suggested a system of collective decision-making and pooling of research funds driven by algorithms and mathematical models (Bollen *et al.*, 2014).

Box 6: The MCubed Research Funding Approach

A team of University of Michigan professors has created a new model for funding academic research that potentially eliminates months of delay from when an idea is born until the money arrives to put it in play. Observing that ideas that used to languish for months or years in poorly circulated academic journals now see instantaneous release online and can be shared by all, they hope the rapid-funding approach will help their peers at Michigan compete in an increasingly fast-paced research community. "If I publish a paper in science, there are thousands of people who will read it even before it comes out," said Mark Burns, professor and chair of chemical engineering at Michigan. In the digital age, "it's really the scholars who are able to respond very quickly who will succeed." Burns created the new funding model, called MCubed, with professors Alec Gallimore and Thomas Zurbuchen, both associate deans in the College of Engineering.

The University of Michigan, with \$1.24 billion in annual research funding, is the second-most-productive research university in the nation, behind Johns Hopkins. Michigan administrators believe the concept, an apparent first among the nation's research universities, represents the future of scholarship on university campuses.

In the traditional model, a researcher has an idea and then launches a torturous quest for funding to realize it. Along the way, the professor must write various grant proposals, submit them, and wait for approval and funding.

The new concept puts start-up funding in the researcher's hands immediately. To access the cash, all the scholars

must do is enlist at least two colleagues who agree that the idea has promise and are willing to commit time to it. The general concept is that any idea good enough that three or more researchers will line up behind it is worth further exploration. Once three researchers decide to "cube" their talents on the project, each will receive \$20,000 from a \$15 million pool of Michigan funding. It's enough money to hire one or two grad-student helpers and fully develop the idea. This initial exploratory phase is key to determining whether an idea has merit. If so, then the team can seek larger, more ambitious funding sources to bring the project to scale. If not, it can be abandoned with minimal waste in time or money.

"Cubes" needn't be limited to three: Twenty or 30 faculty members can pool their talents, tap much more start-up money, and open a full-scale research center in a matter of days or weeks. Research at that pace simply is not possible under the traditional model, the scholars say. MCubed is set up to encourage big, bold, risky ideas. Researchers might not ordinarily pursue a risky idea because of the time involved in securing even the meager funds to explore whether it has promise.

In the new Michigan model, faculty members essentially vote with their feet. If colleagues coalesce around an idea, that sends a signal to the university that it is probably a good one; no professor may pursue more than one idea at a time, so choices must be made. One member of each research "cube" must be from a different academic department, a provision that ensures projects will reach across disciplines.

Source: de Vise, 2020.



Governance and Leadership Beyond the Pandemic

The pandemic has tested the leadership skills of college and university presidents in an unprecedented way, forcing them to make quick and vital decisions to protect the health of the academic community and maintain business continuity under taxing and uncertain conditions. A lesson of the crisis has been the importance of effective and frequent communication to explain, in an honest and transparent manner, the challenges and the unknowns brought about by COVID-19.

By contrast, the muddled approach adopted by many countries and institutions in the wake of the fall 2020 semester has left large numbers of students and their families in a limbo, creating additional stress and anxiety, and even putting the lives of students in danger as has happened in several US institutions that reopened under undue political pressure without adequate protective measures in place. Anecdotal evidence from the United States and the United Kingdom suggests serious breaches in ethical behaviors by institutional leaders that have deliberately misled returning and new students about the likelihood of reopening campuses for the sake of collecting full tuition fees that many students would not have paid if they had known with certainty that classes would continue online in the new academic year.⁴⁷ It would also appear that, in several colleges and universities, professors have been strictly prohibited from discussing the prevalence of coronavirus cases among returning students. British students have been locked down under police surveillance, with tactics reminiscent of disciplinary practices on Chinese campuses.

Manchester Met said it had introduced a 14-day self-isolation period at its accommodation at Birley and Cambridge Halls after 127 students tested positive for the virus. Some students there said they were getting ready to go out on Friday night when they looked outside to see security guards and police who told them they could not leave. First-year Joe Byrne said: “We have had no warning, support, or advice from the university about how we get food etc., and instead have been left completely in the dark and practically locked up against our will.” Megan Tingey said she was not contacted by the university about the lockdown

before police turned up outside her Birley Vine accommodation. “It was quite scary and confusing,” she said. “No one’s really told us much and then the police turn up as well with security outside” (BBC News, 2020b).

A significant element of successful communication has been reliance on early feedback from students and academics to understand what worked well and what was missing after the transition to online education. The results of this feedback have helped colleges and universities take corrective measures and provide adequate support to help members of the academic community facing difficulties in their personal and educational life.

Thinking about the post-pandemic times, higher education leaders would be well-served to rely more frequently and systematically on such feedback mechanisms. A paradox of colleges and universities is that, even though they are populated by scholars and thinkers, they are not always good at applying their knowledge to the analysis and assessment of their own mode of operation. The COVID-19 crisis will hopefully push more higher education institutions to evolve into learning organizations capable of engaging all members of the academic community in strategic reflections on areas to improve in order to strengthen their capacity to function as resilient institutions.

The COVID-19 experience of British universities suggests a second meaningful lesson about the importance of delegation (Sharpe, 2020). As higher education institutions scrambled to move rapidly from face-to-face to online education and remote work, many leaders realized that decentralizing more than they would have done in normal times was the best way to show trust and empower administrators and academics to find practical and innovative solutions to the many challenges encountered.

This has persuaded many leaders that, post-COVID-19, they need to better calibrate where they need to exercise ‘tight’ (top down) control and where they need to be ‘loose’ (empowering and trusting others to deliver). Greater trust and empowerment seem to have enabled a positive institutional response and not led to chaos (Sharpe, 2020).

Linked to this observation is the need for all higher education institutions to factor the risk of crisis more

methodically into their strategic planning. Even though many colleges and universities operate in countries with a precarious social and physical environment characterized by inequalities, violent crime, war, natural catastrophes, and epidemics, very few institutions of higher learning have incorporated contingency planning and risk analysis in their modus operandi. Thus, the majority of them were caught by surprise when the pandemic forced the closing down of campuses in almost every corner of the planet. Even when faced with this unprecedented disruption, they assumed that the halting of normal teaching, research and learning activities would be a matter of a few months.

Contingency planning involves undertaking thorough risk assessments and putting in place mitigation measures to anticipate the medium- and long-term consequences of the pandemic, including the expected economic recession, and incorporating lessons from the ongoing COVID-19 crisis. Box 7 shows how Singapore universities started to take health threats seriously after the SARS epidemic, which forced the closure of a few universities in China, Hong Kong, Toronto, Taiwan, and Singapore. But afterwards everyone went back to “business as usual” as if nothing had happened. Very few did what the Singapore universities did (preparing for online education), and very few became serious about contingency planning.

Another important governance aspect that higher education leaders need to deal with is the situation of burnout faced by many academics and administrators after six months of pandemic. Burnout can be defined as a feeling of total exhaustion: “It’s not just physical or psychological exhaustion, it’s everything together. But instead of collapsing and saying, ‘I can’t do this anymore,’ you hit the wall and climb over it. A key part of burnout is continuing to work—perhaps even pushing harder—when you are exhausted” (McClure, 2020). Burnout is likely to make people less creative, more anxious, more prone to conflict with colleagues, and lower their performance.

The pandemic has introduced unique challenges for faculty and staff in higher education that may make burnout even likelier to occur. They are mourning the disruption of the rhythms and rituals that structure and give meaning to academic work. Summer is normally a time of restoration for faculty and staff, and many believed that if they could just finish spring semester, they would have a chance to recover, said Renee Cramer, chair of the Law, Politics, and Society Department at Drake University, who has been researching ethics and the academic workforce as part of a three-year project.

Box 7: Singapore: Learning from the Past – Ready for the Future

“Here is your key card, log-in access, office key and personal thermometer,” said the university administrator when I started teaching many years ago. I was puzzled with the thermometer as a standard-issue device for every employee. . . . Since I was not here during the 2003 SARS outbreak, I never appreciated the importance of having a thermometer in my desk drawer, but now I use it twice daily. How often do we really take critical lessons from the past to protect our future?

“Every instructor must complete the training for delivering their courses in an online format in case of emergency,” the university provost told us more than seven years ago. It seemed a bit unnecessary at the time, but all of us completed the training -- and were retested each semester. Who would have thought that in 2020 we would need to shift more than 1,000 courses to an online format with less than 12 hours’ notice! That could not have been accomplished without the compliance for managing online learning and the ongoing vigilance to keep things running. While we are all set in our own operating modes, how often do we consider what potential risks these worn patterns might hold in the face of disruption?

The nation’s readiness for emergencies is perhaps a function of the size and potential vulnerability, but is still nothing short of remarkable. In spite of the global crisis, classes and university operations have continued without disruption.

Source: Smith, 2020.

But “there’s been no recovery,” she added. Cramer reports seeing a much higher level of burnout, and the result is that faculty “are walking into the classroom, wherever that is, in three weeks already exhausted” (McClure, 2020).

Experience shows that the first step to address burnout is to break the stigma around it by acknowledging it publicly as a normal outcome of the emergency mode under which everyone has been working since the beginning of the pandemic. Relevant steps that the leaders of colleges and universities can take are to (i) simplify everyone’s duties and defer unnecessary tasks, (ii) work to improve work conditions and reverse policies and practices that undermine job



I keep pushing myself and our team to think about how we use this inflection point to reimagine our potential together, as opposed to allowing our organization to just go back to the comfort of ‘Let’s do what we’re doing.’

— Michael Fisher, CEO, Cincinnati Children’s Medical Center Hospital (Dewar et al, 2020)

security and mental health, especially for contract staff, and (iii) embrace flexibility as much as possible (McClure, 2020).

For higher education institutions in low-income countries, the COVID-19 crisis may be the right moment to activate a few deep partnerships with universities in other countries that are willing to share their resources and experience in this time of emergency, especially in the areas of digital education and collaborative online research. South-South partnerships with universities and other relevant actors can be particularly rewarding, notably in the area of e-learning. In Africa, for example, many universities could benefit from closer linkages with providers of online education in Ghana, Kenya, Morocco, Nigeria, South Africa, and Tunisia, widely recognized as leaders in this domain on the African continent. India’s NREN has offered to provide any interested African country with free access to digital platforms, peer-to-peer services to support research collaboration between African and Indian scientists, and technical support to help strengthen NRENs and develop campus networks.

Another aspect of governance worth mentioning is the toll that the pandemic will have on college and university presidents. A former vice-president of the Association of Governing Boards of Universities and Colleges in the United States predicted a high turnover in post-COVID times as a result of several factors: presidents who were about to retire but deferred their departure because of the emergency; presidents who were thinking about retirement and might advance the decision as a result of the overbearing pressure; cancellation of presidential searches during the pandemic; and leadership failures among presidents overwhelmed by the difficult circumstances who will need to be replaced (Eckel, 2020). Many institutions are likely to find themselves in similar situations across the world, and to have difficulties finding replacement leaders easily, as many colleges and universities will be looking to hire presidents at the same time.

As they look ahead at the post-pandemic era, the leaders of higher education institutions should seek to answer three key questions, as suggested by Marguerite Dennis (2020a).

The first one is about the new vision for the future of their institution. Are they planning to just follow the others or to define new orientations? The second one has to do with the evolution of their leadership style and governance structure during the pandemic, and whether these changes are temporary or are likely to endure. The last question is about identifying and seizing the new opportunities offered by the transformation experienced during the pandemic to build a more resilient institution in the future.

As far as goal setting is concerned, the COVID-19 crisis and the abrupt switch to online education have shown the feasibility of achieving, in a short period and with the entire academic community on board, momentous changes that were not seen as possible before the pandemic. So, this may be the time for much higher aspirations based on bold and ambitious targets about the education and economic models of higher education institutions, reflecting a similar evolution in the business world.

In the business world as in the higher education sector, leaders who come from outside the organization find it easier to make bold decisions than those who have been selected from within (Birshan, 2017; Salmi, 2016).

The pandemic has also been a time for leaders to show not only “what they do” but also, perhaps more importantly, “who they are.” It has been a time for compassion and humanity, with extra care given to the health of the academic community and increased solidarity with needy students. Hopefully, these positive values can become even more embedded in the missions and modes of operation of higher education institutions after the pandemic, thereby strengthening the ethical dimensions driving colleges and universities.

Finally, adapting to the new operational conditions under the pandemic has demonstrated the usefulness of networks at all levels. Higher education leaders have shared solutions to common challenges with their peers at home and with their partners overseas. Academics have benefited from the experience of instructors that have more experience with online education both within and outside their institution.



“A downturn is an opportunity to revisit inefficiencies.” — Emily Oster, Brown University economist

Inventing a New Economic Model

Depending on the evolution of the health and economic situation and the funding patterns of each country, the pandemic has required additional expenses (purchase of IT software and equipment, emergency financial aid to students, additional cleaning and health measures) and resulted in reduced revenues (cuts in public budgets, loss of students, tuition reimbursement/reduction/deferral, refunds for dorms and meals, sport events, parking, etc.). As indicated earlier, large numbers of higher education institutions are likely to suffer significant financial losses, some may have to close down, and most could use this opportunity to revisit their business and funding models.

Among the structural features that make colleges and universities vulnerable are over-reliance on tuition fees, especially those from international students, lack of funding diversification, and lack of endowment. Generally speaking, public higher education institutions must try to reach a healthier balance between public and private funding sources, while private colleges and universities ought to avoid depending only on tuition fees.

From the students' viewpoint, the level of student aid available at the national and institutional levels is a key factor, as is the balance between merit aid and needs-based financial support. The higher the proportion of needs-based support, the better for students from low-income families.

Faced with less favorable prospects for philanthropic contribution in the medium term, higher education institutions that have a substantial endowment have been forced to revisit and redefine their policies for the use of financial reserves in times of crisis. This was triggered in part by the uproar created by Johns Hopkins University when it announced in April 2020 that it would stop paying the pension contribution for its administrative and academic staff because of the revenue losses caused by the COVID-19 crisis—even though the University is the fifteenth wealthiest private school in the United States with a \$6.3 billion endowment.⁴⁸ There is, indeed, a need to think carefully about the use of endowment resources traditionally reserved for long-term development projects,

for responses to emergency situations and greater focus on equity-oriented actions to protect vulnerable students.

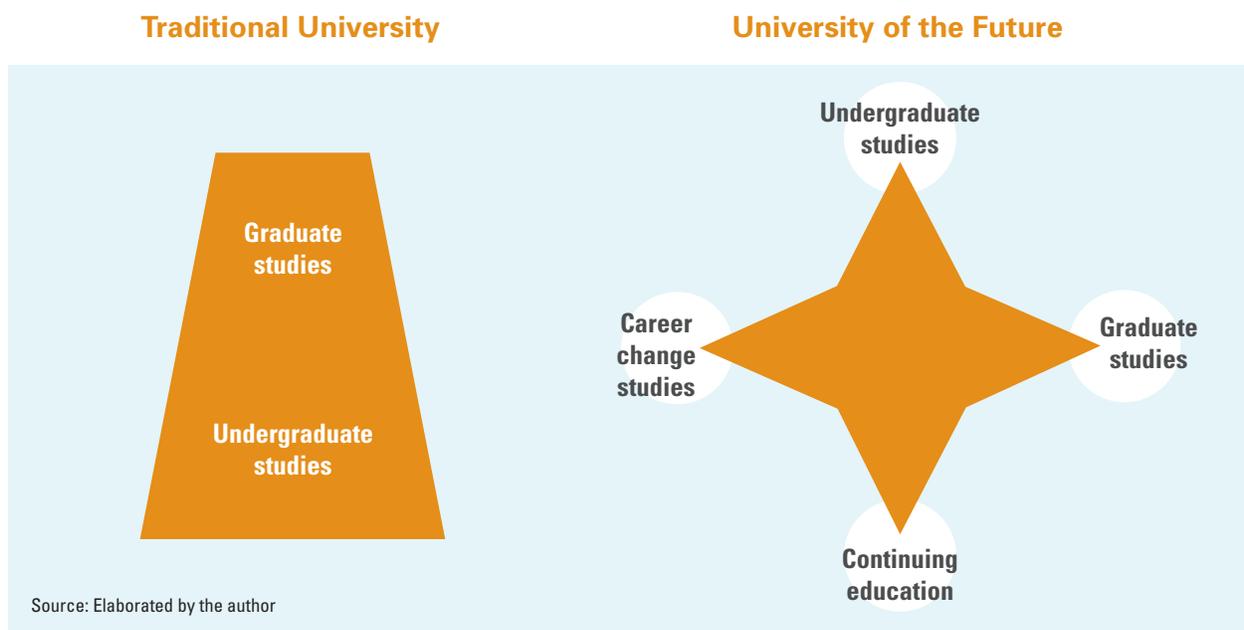
New opportunities may arise from the post-pandemic period. For example, with travel restrictions all over the world and growing racism against Asian students in many countries—accused of having brought the coronavirus to these countries—foreign providers operating in developing countries may see a surge in demand. In Vietnam, for example, RMIT University has seen an influx of students who would have otherwise gone to study in Australia or North America.⁴⁹

From the students' viewpoint, the level of student aid available at the national and institutional levels is a key factor, as is the balance between merit aid and needs-based financial support.

Adult learners are another segment of the population that higher education institutions need to embrace and target more specifically. In spite of the existence of national policies to expand lifelong education, at least on paper, few colleges and universities around the world have made significant efforts to offer programs adapted to the training and retraining needs of adult workers, with the exception of community colleges in North America and South Korea, for-profit providers in Brazil and the United States, a few private universities in Colombia (EAFIT) and Peru (Catholic University in Lima), or innovative online institutions like Western Governors University.

Adopting a lifelong learning focus goes beyond just offering short training courses within an exclusively professional context. It is an approach that stresses the

Figure 10: The evolving shape of the universities



primacy of the learner, recognizes competencies acquired on the job, and requires higher education institutions to reorganize themselves to accommodate the learning and training needs of a more diverse clientele: working students, mature students, stay-at-home students, traveling students, part-time students, day students, night students, weekend students, and so on.

Today's average student is no longer the 18-year-old whose parents drive her up to "State U" in a minivan stuffed with boxes. Instead, the "new normal" student may be a 24-year-old returning veteran, a 36-year-old single mother, a part-time student juggling work and college, or the first-generation college student. The faces we picture as our college hopefuls can't be limited by race, age, income, zip code, disability, or any other factor (Office of Educational Technology, 2017).

New patterns of demand are emerging whereby learners attend several institutions or programs in parallel or sequentially, thus taking the initiative to define their own skill profiles on the labor market, and potentially combining traditional degrees and new types of qualifications such as microcredentials, offered by non-university providers.

Therefore, universities embracing the lifelong learning agenda need to rethink the distribution of students

between first-time students and adult learners, which should translate into a notable transformation of their shape. Most universities all over the world look today like a pyramid where the majority of students are undergraduate students coming directly from secondary education, complemented by a small share of postgraduate students. Looking towards the future, taking the lifelong learning mission of higher education institutions more seriously would transform the shape of universities, as illustrated by Figure 10. Undergraduate students would represent a small part of the picture, as would graduate students. A growing proportion of programs would be designed to address the continuing education and career change needs of the adult population.

Stanford University launched the Open Loop concept a few years ago, which intends to redefine education as a lifelong journey, rather than the traditional one-shot, four-year undergraduate experience. Under this approach, Stanford offers six years of non-linear residential learning, allowing students to drop in and out of the on-campus experience during their lifetime to join a diverse, fluid community of learners. Focusing more on competency and skill acquisition than disciplinary areas, the university is organized around competency hubs rather than academic fields. In a truly lifelong learning approach, the emphasis will be on how students are able

to use their knowledge rather on what they know. The plan is to replace transcripts with skill prints providing a dynamic portfolio of student competencies and experiences “designed to show employers not what they have taken, but what they have to give” (Andrews, 2015).

In open loop education, students enter when they are ready across a range of ages. The boundaries between education and the workplace are permeable, with students coming and going in multiple “loops” in the same spirit as the original co-op programs that some universities still use. Students never become what we think of today as “alumni.” Rather, they are lifelong learners, and the university is their learning partner for life. As students become seasoned professionals, they return as expert practitioners and share their wisdom as teachers—which of course enhances the learning experience, since the best way to learn something is to teach it. Throughout a person’s life, they engage in multiple learning loops to ensure their knowledge and skills remain fresh and relevant (DeRue, 2018).

This might also be the time to reconsider the traditional way of organizing the academic year on the basis of semesters, as suggested by Marguerite Dennis (2020b). Blended modes of teaching and learning, together with online application and selection processes, would allow colleges and universities to offer personalized learning experiences and qualification paths all year long.

Finally, in the same way as some public higher education systems in the US are thinking hard about ways of pooling facilities, services and procedures to serve all universities and colleges in their state, individual institutions across the world could consider how to build on their networks to collaborate more systematically with partner institutions, instead of competing as they have in the past. Higher education institutions can explore new forms of alliances that allow them to offer joint degrees, teach courses collectively, and conduct research collaboratively, combining their talent and financial resources more effectively.

Equity-Focused Responses

One of the priority tasks for many higher education institutions, immediately after the closure of on-campus activities, has been to alleviate the hardships experienced by students from low-income families and other vulnerable groups. This has involved a combination of four types of measures: (i) emergency financial assistance; (ii) support for access to online education; (iii) help with academic

aspects linked to the switch to online education; and (iv) emotional support to relieve stress and anxiety.

In the first place, many students have found themselves stranded in the city—or country in the case of international students—where they studied, with insufficient funding to pay for alternate lodgings and other living expenses. Financial help has come in the form of additional grants, interest-free loans, and access to food banks and food parcels, all paid for by the colleges or universities themselves or through emergency fund-raising. The Malaysian Ministry of Higher Education asked universities to help stranded students find temporary housing.⁵⁰

To reduce the digital divide between rich and poor students, many institutions have donated or loaned out devices to students and offered them internet bundles to provide access to online resources. In Ghana, for instance, Asheshi University offered 10GB internet bundles to all the students who could not afford their own internet connection. In South Africa, the University of Witwatersrand rapidly struck a deal with the local internet providers to provide its students with zero-rated access to specific educational websites. The University of Sierra Leone enlisted the help of the national telecom company to provide zero-rating internet services for students accessing the university’s web portal.

The third dimension has consisted in strengthening existing mechanisms to identify at-risk students and offer adequate academic support to make sure that they would not fail in their studies as a result of the switch to online education. Following the experience of universities in the United States that are using big data and predictive analytics to reduce dropouts, such as Arizona State University’s eAdvisor system or Georgia State University’s early-warning system, a growing number of higher education institutions have adopted AI platforms to support their students during the pandemic.

Finally, many colleges and universities have tried to boost their online health services to attend to the emotional needs of students with high levels of stress or anxiety as a result of the health and economic crisis and difficulties adapting to online education. A recent survey in the United States found higher rates of depression compared to 2019, and increased difficulties for students to access mental health support (Redden, 2020).

Sixty percent of college students say the pandemic has made it harder to access mental health care, even as financial stresses and prevalence of depression increased

among them... and 35.7 percent say they've moved to a new living situation as a result of the pandemic... 5.5 percent of students reported experiencing discriminatory or hostile behavior based on their race or ethnicity as a result of the pandemic, and 41 percent reported witnessing discriminatory behavior online or in person (Redden, 2020).

Japanese and Malaysian universities have organized peer support networks to help students finding themselves in emotional distress. Bracing themselves for large numbers of students suffering from stress and depression, some British universities have put in place a predictive analytics platform relying on metrics such as library use, class attendance, online log-ins to access course materials, and on-time completion of assignments to identify at-risk students.⁵¹ Many institutions have also tried to organize sport and art activities online to maintain this important dimension of the students' physical and psychological well-being during the pandemic, as illustrated

by this testimony from the Mexican Institute of Technology in Monterrey.

In Mexico, higher education institutions understand not only the need to keep art programs afloat for the benefit of students, but also how these benefits can be extrapolated and become a support for the emotional health of the general public. "Not a teacher has stopped ... because we know that these activities help to lighten the academic load and the stress that the [health] emergency can cause," says Eloísa Hernández, coordinator of the Department of Art and Culture of Tec de Monterrey. Hernández reported on the joint effort of the university for the continuity of education in art. All the classes that were given in person [before the crisis] have been included in the online platforms, as well as the academic ones (García-Bullé, 2020).

Table 7 summarizes the range of measures offered by higher education institutions to support needy students.

Table 7: Support to needy students

Areas of Intervention	Activities
Financial Help	<ul style="list-style-type: none"> • Emergency scholarships/grants • Low-interest or interest-free loans • Food banks, food parcels and gift cards for grocery stores • COVID-19 fund raising • Reduced tuition • Deferred tuition • Refunds for unused services
Support for Access to Online Education	<ul style="list-style-type: none"> • Donation/loan of laptops or smartphones • Free or subsidized subscription to internet • Free access to free digital resources
Support for Learning	<ul style="list-style-type: none"> • Provision of digital resources complementing course work • Monitoring of student results • Tutoring and mentoring for at-risk students • Peer support • Support for real or virtual internships
Support for Physical and Emotional Well-Being	<ul style="list-style-type: none"> • Access to free health care • Psychological support • Peer support • Provision of fact-checked information on COVID-19

In Australia as in many countries, higher education institutions have responded to the needs of vulnerable students by establishing specific COVID-19 grant schemes, increasing access to student scholarships, lending laptops to students, undertaking food drives, and providing reduced pricing in accommodation. The most effective support has come from colleges and universities that have designed a comprehensive strategy to help vulnerable students, encompassing the health, financial, academic, and psychological conditions of the students. McGill University in Montreal, Canada, for instance, put in place the following combination of measures:

- Special fund (from donors and the University) to provide immediate financial assistance—grants not loans—to students faced with unexpected expenses and/or loss of income.
- Change of grading policy for the Winter term to allow students to choose Satisfactory/Unsatisfactory grades rather than letter grades at any point, including after they had seen their grade for the course.
- Automatic approval of all requests for deferred exams.
- Reduction in the weight of final exams.
- Approval of late withdrawals from courses.
- Transformation of all final exams into open book (time-limited) or take-home (extended time to complete), with a 48-72 hours window to complete the exam. Additionally, there was an increased reliance on oral exams (live or recorded by student). This addressed equity concerns, including time zones and challenges to uninterrupted internet access.

In Brazil, the State University of Campinas (UNICAMP), one of the top public universities and the first one to move online in early March 2020, included the following actions in its plan to protect the most vulnerable students:

- Emergency scholarships for 2,000 students.
- Donations of laptops/tablets and free internet plans to needy students.
- Free medical support for COVID-19 patients and a hotline for medical advice to the general public.
- Virtual learning platform with free digital educational resources.
- Written papers and exercises in replacement of hands-on activities.
- Psychological support to students feeling stress or depression.

Along similar lines, Witswatterrand University in South Africa offered the following facilities to its most vulnerable students:

- Shipment of laptops/tablets to the homes of needy students.
- Free internet plans and zero-rating access to the University's online resources.
- Psychological support to address mental health issues.
- Postponement of assignment and tests during the first two months of the transition to online learning.
- Personal tutoring for students falling behind.

One of the Texas districts in the United States, Alamo Colleges District, has stood out for its “Keep Learning



Plan,” which offers five major initiatives to support minority students from the Black and Hispano communities:

- Clean Slate, a program that forgives a student’s outstanding account balance up to \$500 from previous semesters.
- Expanded Summer Momentum, which promotes degree completion by allowing currently enrolled students to take free classes in the summer.
- Reduced Payment Plan, an initiative that reduces the fee to set up a tuition payment plan for fall 2020 from \$25 to just \$1.
- No-cost testing, to cover the \$32 cost associated with the required college-readiness Texas Success Initiative test.
- A \$5 million investment in laptops, hotspots, and other technology tools to facilitate remote learning (Brownlee, 2020).

While almost all colleges and universities across the world have resisted calls to refund students entirely or partly to compensate for the switch to online education, there have been notable exceptions. In the United States, Southern New Hampshire University (SNHU), slashed their annual tuition fees from \$31,000 to \$10,000 for the new academic year, reflecting the evolution of the campus education model into a blended learning experience (Phelps, 2020). In addition, SNHU will give full tuition scholarships to all new students for their first year of study. In Colombia, the public University of Antioquia announced that students would not pay any fees as long as the pandemic lasts. Most Irish universities have offered a reduction in the price of student hostels for the next academic year.⁵² Several universities in South Korea have agreed to reimburse 10 percent of the tuition fees paid by students during the spring semester.⁵³

Colleges and universities that are genuinely committed to inclusion and equity should reorient their financial aid from merit aid to needs-based aid. Statistics from the United States show that, in recent years, many institutions have shifted to merit aid as a way of attracting students from well-off families. This practice is likely to accelerate in the aftermath of the pandemic, as higher education institutions seek to compensate for a possible drop in enrollment.

In recent decades, many institutions of higher education have increasingly been awarding money to students who do not need that aid to afford college. More than half of the 339 public universities sampled in a paper published by New America at least doubled the amount they spent on so-called merit aid from 2001 to

2017; more than 25 percent quadrupled the amount. ...The schools do it because well-to-do families, overall, bring the institutions more tuition dollars than their lower income peers... By diverting such a large share of limited dollars from students who need help to afford college to students who don’t, schools are exacerbating a long-term trend of many schools enrolling far more students from families at the top of the income ladder than from those at the middle and bottom of it (Kurzweil and Wyner, 2020).

Higher education institutions that have put bridge and outreach programs in place to improve the pipeline of students from under-represented groups should keep supporting them, especially in these times of pandemic and economic hardships. Complementing these, adequate counseling in high school can make a huge difference in terms of student completion and ability to continue to higher education, as illustrated by the story of Richmond Hill High in Queens, USA (Box 8).

Colleges and universities that are genuinely committed to inclusion and equity should reorient their financial aid from merit aid to needs-based aid.

Finally, a number of higher education institutions have tried to put in place measures to support female academics who have been adversely affected more than their male colleagues by the pandemic. These have included provisions to help female faculty achieve tenure: automatic one-year extension without prejudice, and removal of excessively negative student evaluations during the pandemic. Some universities have also addressed ways of avoiding short-term academic losses for female academics, such as surveys to identify obstacles faced by female academics, funding for child care, waivers of non-essential administrative duties, teaching relief for academics with the heaviest care-giving obligations, and online support networks for family issues (Kramer, 2020).

Summary of Policy Lessons at the Institutional Level

- *Having a well-developed and experienced Teaching and Learning Services department is a strong asset to facilitate the transition to online education and introduce innovative curricular and pedagogical practices.*
 - *Professional networks within and beyond higher education institutions are important platforms to support academics struggling to adapt to online education.*
 - *Effective governance during the pandemic involves compassion from leaders, flexibility in management, and delegation of decision-making to empower all academic and administrative actors.*
 - *Implementing a transparent communication strategy*
- raises the level of awareness and ownership among the entire academic community during times of crisis.*
 - *The disruptive effects of the COVID-19 crisis reinforce the need for more systematic risk analysis and implementation of prevention measures as part of strategic planning.*
 - *In preparation for the post-pandemic era, the leaders of colleges and universities should define a bold vision that builds on the opportunities for implementing innovative approaches in the educational and economic models of their institutions.*
 - *Effective support for vulnerable students requires comprehensive sets of measures that encompass their financial, technology, educational and health needs.*
 - *In the post-pandemic era, colleges and universities should embrace adult learners as an essential component of their student target population and offer appropriate programs to meet their learning needs.*

Box 8: Counseling in Jeopardy

Students at Richmond Hill don't come from privileged backgrounds. They are mostly immigrants or the children of immigrants—Guyanese, Punjabi, Dominican. Eighty-two percent of them meet the federal definition of economic disadvantage, and 22 percent speak a language other than English at home.

Back in 2014, only about half the school's freshmen were graduating from high school on time, and only 40 percent of those graduates were going on to college. That was the year Robert Schwarz, a vice principal, was put in charge of improving those numbers. At the time, there was just one college counselor at Richmond Hill for almost 600 seniors—a typical ratio in New York City public schools and a thoroughly unmanageable one. Schwarz hired a second college counselor.

Then he got word of a local nonprofit group called College Access: Research & Action, or CARA, which provides a schoolwide coaching and training intervention designed to improve college-going rates at New York City high schools. With CARA's help, Schwarz set up a dedicated college advising office, recruited Richmond Hill's guidance counselors into the college process and introduced into the curriculum a college-application class for juniors. Together, the various interventions made a difference. The on-time graduation rate at

Richmond Hill is now about 70 percent and 75 percent of those graduates went directly to college in 2019.

This year, the threat of summer melt loomed particularly large at Richmond Hill High. There were many seniors whom Schwarz and his team had spent more than three years persuading, bit by bit, that college might indeed be the right option for them. When COVID-19 began to take its toll in the spring, that effort suddenly began to unravel, as students abandoned their college plans, often compelled by economic necessity to try to find work to help support their families.

At the beginning of the summer, bridge coaches are each assigned a caseload of a few dozen students, and they usually spend July and August encouraging and cajoling them, making sure their paperwork is in order and their plans are secure. This summer, with in-person meetings impossible, bridge coaches had to rely on digital creativity to track students down. Sometimes texts and phone calls were enough. But Erick Perea, a bridge coach, started using Instagram direct messages and video chats to reach his students, as well as multiplayer games on PlayStation 4. He did some of his most effective college counseling at 4 a.m., he told me, discussing financial-aid forms with his advisees on in-game chat in NBA 2K20 and Brawlhalla.

Source: Tough, 2020.

Angels and Vultures: Support from Other Actors

As the pandemic forced the closure of campuses all over the world and a shift to online education, the division of labor within and outside higher education institutions has experienced two opposite trends. On the one hand, many colleges and universities have tried to help vulnerable students cope with the unusual conditions (see previous section), which means that many have stepped in to provide direct assistance in areas where external players would have usually intervened: financial assistance, physical and emotional health care, support with food and access to housing, support with technology and internet, etc. On the other hand, the pandemic has precipitated the unbundling of many activities that were traditionally located inside higher education institutions: curriculum design, production of digital resources, organization of virtual classrooms, proctoring of examinations, etc. As a direct result, colleges and universities have called upon outside organizations and firms on an unparalleled scale.

For this reason, the abrupt, broad-based transition to online education has been a boon for education technology companies. A few of them appear to have shamelessly taken advantage of the crisis to boost their prices or dump flawed products on the market. A few law firms in the United States have tried to capitalize on the anger of students to start class action suits against universities to get tuition fees back.⁵⁴ Fortunately, these “bad apple” companies appear to be a small minority. Many firms, from the education sector and beyond, have shown boundless generosity in support of the thousands of higher education institutions and millions of students left stranded by the pandemic. Telecom companies have offered free or highly subsidized internet packages to students and academics and have exempted educational institutions and organizations from data charges. Academics and students all over the world now have access to free courses and digital content in many languages. Higher education institutions can use digital platforms for virtual meetings and videoconferences, for scheduling classes and group work, for identifying at-risk students, and for providing them with online tutoring. Academics and students have access to virtual labs for simulations and experiments.

The impressive ascent of Zoom may be the most emblematic digital success associated with the pandemic. No one could have predicted at the beginning of 2020 that

Zoom Technologies would grow three hundred times by mid-year. But with the COVID-19 pandemic forcing so many people into their homes, the startup launched in 2013 has emerged as a giant in modern telecommunications and videoconferencing. Even amid growing security and privacy concerns and cases of censorship at the request of the Chinese government in early 2020, Zoom still managed to experience spectacular growth. Zoom’s daily meeting participants soared from 10 million in December 2019 to 200 million in March 2020 and 300 million in April, earning founder and CEO Eric Yuan \$12 billion in a few months (Rogers, 2020; Warren, 2020). With so many aspects of life transitioning online, Zoom became a powerhouse providing an accessible, user-friendly platform for meetings, classes, family gatherings, friendly game-nights, and even sessions of the United Kingdom’s Cabinet and the Houses of Parliament.

Many firms, from the education sector and beyond, have shown boundless generosity in support of the thousands of higher education institutions and millions of students left stranded by the pandemic.

In a large number of countries, and especially in Sub-Saharan Africa, the national and regional research and education networks have played an important role in giving colleges and universities access to fast internet and collaborative networks. This follows the tradition of the Network Startup Resource Center, started in 1992 with a grant from the U.S. National Science Foundation, which has been instrumental for the establishment of such networks in many parts of the world.

Since the beginning of the pandemic, the MOOC pioneer Coursera has given free access to its 3,800+ courses to students all over the world with a valid university email, including free certificates until the end of the calendar year.⁵⁵ Its academic offerings are delivered in partnership with more than 180 top universities and enterprises. Microsoft’s skill initiative aims at facilitating access to digital skills for people hardest hit by job losses, including low-income workers, women, and underrepresented

minorities.⁵⁶ Up to 25 million people throughout the world will be able to study free-of-charge and receive low-cost certifications together with free job-seeking tools.

Companies and philanthropists in many countries have donated money, computers, and tablets to help students adjust to the new online learning approaches. In South Africa, a generous donor has just cleared the debts of 300 students at Walter Sisulu University who were expected to graduate this academic year.⁵⁷ The Banking group Absa donated the equivalent of US\$300,000,000 to purchase learning devices and mobile data distributed

to needy students through Universities South Africa.⁵⁸ The pharmaceutical company Aspen Pharmacare gave 600 devices to poor students enrolled at the University of Pretoria.⁵⁹ All internet providers in Sri Lanka gave free access to university websites for six months. Within three days of the lockdown measures in France in March 2020, 320 EdTech companies had pooled their resources to offer the education community a website with access to all available free digital resources, tools, apps and platforms in support of education continuity.⁶⁰ The Hong Kong Jockey Club provided free mobile internet data worth the equivalent of US\$5 million to low-income students.⁶¹



Conclusion: The Post-Pandemic Landscape



...Coronavirus has made the mighty kneel and brought the world to a halt like nothing else could. Our minds are still racing back and forth, longing for a return to ‘normality’, trying to stitch our future to our past and refusing to acknowledge the rupture ... Historically, pandemics have forced humans to break with the past and imagine their world anew. This one is no different. It is a portal, a gateway between one world and the next.

— Arundhati Roy, *Financial Times*, 3 April 2020

Humankind is now facing a global crisis. Perhaps the biggest crisis of our generation. The decisions people and governments take in the next few weeks will probably shape the world for years to come... We must act quickly and decisively. We should also consider the long-term consequences of our actions. When choosing between alternatives, we should ask ourselves not only how to overcome the immediate threat, but also what kind of world we will inhabit once the storm passes. Yes, the storm will pass, humankind will survive, most of us will still be alive — but we will inhabit a different world. Many short-term emergency measures will become a fixture of life. That is the nature of emergencies. They fast-forward historical processes. Decisions that in normal times could take years of deliberation are passed in a matter of hours. Immature and even dangerous technologies are pressed into service, because the risks of doing nothing are bigger. Entire countries serve as guinea pigs in large-scale social experiments. In normal times, governments, businesses, and educational boards would never agree to conduct such experiments. But these aren’t normal times. — Yuval Noah Harari

It is not the first time that industrial and developing countries alike face major crises. Wars, natural catastrophes, social unrest, and financial downturns are alas too frequent. But never before had the strength of colleges and universities, from low- to high-income countries, been tested as painstakingly as during the current pandemic. Furthermore, the health crisis has revealed that the digital gap and economic inequalities are not theoretical notions of little consequence when it comes to the higher education sector, but uncomfortable realities that directly influence the capacity of colleges and universities to cope with the COVID-19 crisis and offer a high-quality online education experience for all students.

Financial Survival. The world’s top universities are unlikely to suffer adverse long-term consequences. As predicted by Phillip Altbach and Hans De Wit in a recent article, “... research universities and top-quality institutions that are globally and nationally recognized and have stable income streams, such as the Indian Institutes of Technology and elite American private liberal arts colleges and similar institutions worldwide, will recover more rapidly and emerge relatively unscathed from the crisis” (Altbach and de Witt, 2020). But for many higher education institutions, especially the private ones that are fully dependent on tuition fees, but also chronically under-funded institutions in low-income countries, financial survival will be a

serious challenge during the deep recession that many economists predict. It is realistic to expect many colleges and universities to close their doors for good. Millions of students with limited resources could drop out of higher education altogether—or at least be compelled to shift to more affordable public or private institutions. The higher education systems and institutions coming out of the pandemic financially crippled will not be able to sustain the progress of past decades, resulting in diminished opportunities for students from under-represented groups and the exacerbation of inequalities in access and success.

Resilience. The main priority, therefore, is no longer to find ways of coping with the short-term effects of the COVID-19 pandemic, but to think carefully how to reshape higher education for long-term resilience. This unprecedented crisis portends drastic structural changes in the educational and business models of colleges and universities. The main question is whether the majority of higher education institutions just want to go back to the “normal state” of the past, as happened after previous crises, or whether they are ready to embrace and mainstream some of the disruptive practices that they have implemented during the pandemic? Will COVID-19 end with just a few ripples in the higher education landscape, or be remembered as a Black Swan moment?⁶²

New Normal. Almost ten years ago, in 2011, the president of Babson College observed that "... the ground is shifting in fundamental ways for higher education. We must reframe our approach to managing colleges and universities in the face of the new normal." Around the same time, the president of Stanford University spoke about the tsunami of digital education about to engulf higher education, and a report from the Pearson Foundation announced an avalanche of disruptive changes coming to higher education. What was true at the beginning of the decade is even more relevant today as colleges and universities envision the post-pandemic future, having undergone a swift and fundamental change with the recognition that online education is a legitimate delivery modality.

Reimagining the university. As far as educational practices are concerned, a growing number of stakeholders have questioned what they see as an outdated, expensive and elitist higher education model relying excessively on standardized tests for admission, traditional lectures for knowledge acquisition—what the South African scholar Mala Singh used to call "education by rumor"—and a rigid structure of semesters and limited years of study with high-stake exams for graduation.⁶³ Will the pandemic accelerate the adoption of flexible pathways and innovative curricular, pedagogical and assessment approaches that are student-centered and take advantage, whenever appropriate, of advanced technologies that can make learning more stimulating, engaging and effective? Up to the pandemic, such innovative approaches had been embraced by only a handful of institutions and audacious educators. It is not a matter of replacing face-to-face education with virtual learning, but to paraphrase the title of a remarkable book on educational innovation, one of the most positive consequences of the COVID-19 crisis could be to reimagine the teaching and learning process as a lifelong education trajectory that has the primary purpose of "sparking curiosity, igniting passion, and unleashing genius" (Martin, K., 2018).

Financial sustainability. As far as the economic model of higher education goes, the COVID-19 crisis should serve as a wake-up call to reassess the vulnerabilities of the higher education sector and the challenges of living in a global and interdependent world. The emergency support and good-will at the beginning of the pandemic must now give way to a more organized and thoughtful approach to reshaping higher education systems and institutions for the medium term (2020-21 academic year)

and defining long-term finance strategies that support more innovative approaches to delivering education and more resilient institutional business models.

Important role of universities. The transformation of higher education is a high order priority, considering that the long-term prosperity of any nation is every day more dependent on its ability to train the qualified professionals, scientists and technicians needed to run the economy and conduct relevant research to spearhead social and economic innovations, including in the health sector. This was adequately captured in a recent letter of the general secretary of the Association of African Universities, urging the African Ministers of Higher Education to: use this as an opportunity to strengthen our educational institutions by making them much more resilient to unforeseen crises. This is a great opportunity to communicate clear messages to our African governments on the urgent need to strengthen our educational institutions and systems by making them future-ready and able to survive and thrive in a world of uncertainty.⁶⁴

Promoting equality. Finally, after the pandemic exposed the extent of the digital divide and the socio-economic inequalities that perpetuate glaring gaps among nations, higher education institutions and the students themselves, it is essential to consider measures at the national and institutional levels that focus on achieving fairness in higher learning for students from low-income families, female students, and racial and ethnic minorities. These students and their families have suffered most from the health and economic crisis brought about by the COVID-19 pandemic. The next twelve months will be a critical test of the capacity of the international community, national and local governments, and higher education institutions to act swiftly and effectively in order to avoid a growing gap between rich and poor countries, between well-endowed and resource-limited institutions, and among the learners. It will be crucial to avoid choices that reinforce or deepen existing disparities. Instead, higher education stakeholders must search together for solutions that create opportunity for all and empower, as a matter of priority, the people who have faced formidable barriers to the economic success and social mobility that higher learning promises to bring. Several decades ago, Albert Camus challenged each one of us to play our part when he wrote "... perhaps we cannot make this a world in which children do not suffer. But we can lessen the number of suffering children. And if you and I do not do this, who will?"

Endnotes

- ¹ <https://en.unesco.org/covid19/educationresponse>
- ² <https://www.universityworldnews.com/post.php?story=20200323065236567>
- ³ <https://www.universityworldnews.com/post.php?story=20200321141054367>
- ⁴ <https://www.universityworldnews.com/post.php?story=20200325083138992>
- ⁵ <https://www.eltiempo.com/vida/educacion/clases-virtuales-manzana-de-la-discordia-en-universidades-480370>
- ⁶ <https://www.universityworldnews.com/post.php?story=20200328085822501>
- ⁷ <https://www.universityworldnews.com/post.php?story=20200425105355888>
- ⁸ <https://www.umultirank.org/press-media/press-releases/about-60-percent-of-universities-reported-online-learning-provisions-in-their-strategic-planning-pre-covid-19/>
- ⁹ <https://www.bloomberg.com/news/articles/2020-03-19/colleges-are-going-online-because-of-the-coronavirus>
- ¹⁰ <https://www.swissinfo.ch/eng/hackers-steal-wages-from-swiss-universities/46075528>
- ¹¹ Interviews with AAU officials.
- ¹² Webinar statement by director of IESAL, UNESCO regional office in Latin America for higher education.
- ¹³ <https://www.scholarsatrisk.org/>
- ¹⁴ <https://www.youtube.com/watch?v=n-JsOZ2TYek&t=1216s>
- ¹⁵ <https://www.universityworldnews.com/post.php?story=2020092615402880>
- ¹⁶ <https://www.nytimes.com/2020/10/02/technology/tech-test-taking.html>
- ¹⁷ <https://www.universityworldnews.com/post.php?story=20200502111109594>
- ¹⁸ <https://www.universityworldnews.com/post.php?story=20200502112616226>
- ¹⁹ Tensions around reopening have already run high in the 16-campus University of North Carolina system, where the push to maintain sports and dorm occupancy has met with intense opposition from worried faculty members. Days after the semester began, the flagship campus in Chapel Hill pivoted to all-remote instruction amid spiking infections... Appalachian State, however, stuck with its plans to allow students to live in dorms and take classes in person for the fall semester. This came over the objections of faculty: In May, a faculty committee recommended that the campus offer only remote instruction for the fall; in August, the faculty senate voted to hold the system responsible for any illness or death as a result of reopening (Bolling and Hubler, 2020).
- ²⁰ For a cynical but humorous take on the “coming back to campus” experiment in the United States, see: <https://www.mcsweeneys.net/articles/our-successful-return-to-campus-an-update-from-your-university-president>
- ²¹ <https://www.heraldscotland.com/news/18772308.coronavirus-scotland-labour-demands-human-rights-universities-inquiry/>
- ²² <https://nypost.com/2020/09/18/virus-clusters-at-french-universities-give-europe-a-lesson/>
- ²³ <https://france3-regions.francetvinfo.fr/paris-ile-de-france/paris/capacite-accueil-reduite-50-universites-toujours-il-y-manque-moyens-1881054.html>
- ²⁴ <https://www.universityworldnews.com/post.php?story=20201006163215364>
- ²⁵ <https://usafacts.org/articles/internet-access-students-at-home/>
- ²⁶ Interview with former emeritus rector of the Brussels Free University.

- ²⁷ <http://bianet.org/english/local-government/231830-nearly-half-of-those-who-applied-to-istanbul-employment-offices-were-university-graduates>
- ²⁸ <https://www.brusselstimes.com/news/belgium-all-news/134335/belgiums-francophone-universities-call-for-urgent-covid-19-intervention-uliege-uclouvain-ulb-umons-unamur-and-usl-b/>
- ²⁹ <https://www.politico.eu/article/uk-universities-look-to-offer-discounts-for-eu-citizens/>
- ³⁰ <https://www.universityworldnews.com/post.php?story=20200926040212787>
- ³¹ https://en.wikipedia.org/wiki/Student_debt
- ³² <https://www.universityworldnews.com/post.php?story=20200923130840933>
- ³³ <https://www.universityworldnews.com/post.php?story=20200924092504592>
- ³⁴ <https://www.smh.com.au/politics/federal/universities-welcome-1-billion-research-bailout-package-20201007-p562rf.html>
- ³⁵ https://yle.fi/uutiset/osasto/news/report_finland_needs_stimulus_then_austerity_to_get_through_coronavirus_crisis/11343155
- ³⁶ <https://www.thenews.com.pk/print/672533-hec-denounces-cut-in-higher-education-budget>
- ³⁷ <https://news.abs-cbn.com/business/07/09/20/study-now-pay-later-landbank-offers-new-loan-for-education-support>
- ³⁸ <https://www.universityworldnews.com/post.php?story=20200926154411361>
- ³⁹ <https://nptel.ac.in/>
- ⁴⁰ <https://colab.colombiaaprende.edu.co>
- ⁴¹ <https://observatorio.tec.mx/edu-news/recursos-educativos-para-innovar-la-docencia-covid19-rie360>
- ⁴² <https://www.rte.ie/news/education/2020/0324/1126152-educations-exams-coronavirus/>
- ⁴³ <https://www.universityworldnews.com/post.php?story=20200425110448392>
- ⁴⁴ https://vse.apru.org/?utm_source=APRU&utm_campaign=cfa07c9700-EMAIL_CAMPAIGN_2020_05_05_02_00_COPY_01&utm_medium=email&utm_term=0_2fbec0fd6e-cfa07c9700-60809213
- ⁴⁵ https://www.chronicle.com/article/more-doctoral-programs-suspend-admissions-that-could-have-lasting-effects-on-graduate-education?campaign_id=174&cid=at&cid2=gen_login_refresh&cid2=gen_login_refresh&emc=edit_csb_20200930&instance_id=22661&nl=coronavirus-schools-briefing®i_id=67135616&segment_id=39437&source=&sourceId=&te=1&user_id=af2b39804e1a32fe36d73754b946e357&utm_campaign=campaign_1565794_nl_Academe-Today_date_20200929&utm_medium=email&utm_source=lterable
- ⁴⁶ <https://www.nationalacademies.org/news/2020/09/nas-and-nam-presidents-alarmed-by-political-interference-in-science-amid-pandemic>
- ⁴⁷ The behavior of the president of the University of Notre Dame in the United States, who became contaminated with COVID-19 after attending a White House party without any precaution, is a sad example of a leader not living by the guidelines that he himself had set for his university.
<https://www.nytimes.com/2020/10/07/us/notre-dame-president-covid.html>
- ⁴⁸ <https://wtop.com/education/2020/04/johns-hopkins-cuts-pay-warns-of-layoffs-in-wake-of-virus/>
- ⁴⁹ <https://www.universityworldnews.com/post.php?story=20200413105356407>
- ⁵⁰ <https://www.universityworldnews.com/post.php?story=2020032114170496>
- ⁵¹ <https://inews.co.uk/news/education/universities-uk-covid-students-mental-health-problems-675963?ITO=newsnow>
- ⁵² <https://www.universityworldnews.com/post.php?story=20200920101606302>
- ⁵³ <https://en.yna.co.kr/view/AEN20200722003300315?section=national/national>

⁵⁴ <https://www.universityworldnews.com/post.php?story=20200425105355888>

⁵⁵ <https://blog.coursera.org/coursera-together-free-online-learning-during-covid-19/>

⁵⁶ <https://blogs.microsoft.com/blog/2020/06/30/microsoft-launches-initiative-to-help-25-million-people-worldwide-acquire-the-digital-skills-needed-in-a-covid-19-economy/>

⁵⁷ <https://www.news24.com/news24/southafrica/news/feel-good-paying-it-forward-historical-debt-paid-off-for-students-at-ukzn-and-wsu-20200315>

⁵⁸ <https://www.universityworldnews.com/post.php?story=20200606112427397>

⁵⁹ <https://www.universityworldnews.com/post.php?story=20200509101331933>

⁶⁰ https://www.campusmatin.com/numerique/edtechs/edtechs-le-confinement-a-fait-prendre-conscience-du-retard-de-la-france.html?nl=91520&utm_source=email&utm_id=188579&utm_campaign=newsletter-2020-08-27

⁶¹ https://corporate.hkjc.com/corporate/corporate-news/english/2020-03/news_2020030601930.aspx

⁶² Black swan events are characterized by their extreme rarity, severe impact, and the widespread insistence they were obvious in hindsight. The concept was introduced by Nassim Nicholas Taleb in 2007.

⁶³ The French Minister of Higher Education herself observed that the COVID-19 epidemic and the closure of universities have changed the traditional perception of lecture hall classes and paved the way for a new way of teaching. “Overall, traditional lectures, where the professor reads his/her lecture in front of a lecture hall of students who do not ask questions, were challenged by many academics during this period,” says Ms. Vidal (Le Monde, 2020).

⁶⁴ https://www.aau.org/wp-content/uploads/sites/9/2020/03/Final_Letter-to-Ministries-of-Education-in-Africa-COVID-19.pdf



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