Bridging the digital divide to engage students in higher education

About this report

Executive summary

While video-conferencing apps and other social platforms have thrown various higher education institutions a lifeline in the wake of covid-19, research shows that many faculty professors are struggling to maintain the same depth of engagement with students they used to have in a physical classroom setting.[1] Ensuring remote and hybrid learning experiences are just as effective and valuable is critical to the immediate and longer-term future of higher education. As a result, nearly every college or university—from small, two-year schools to large public and private institutions—have been asking the same question: How do we engage (and retain) students in this brave, new learning normal?

Against this backdrop, this Economist Intelligence Unit (EIU) report will explore the extent to which covid-19 has served as an acceleration catalyst for higher education's

remote and hybrid learning revolution around the world. As such, it will investigate the pandemic's impact on the higher education sector across and within specified countries (the US, UK, Australia and Germany), institution sizes (small, medium and large), and subject areas (business and management, liberal arts and humanities, STEM, and professional studies).

Underpinned by quantitative and qualitative research, the report will draw upon compelling insights from two multinational surveys targeting higher education faculty members and students respectively, leading expert interviews, and rigorous desk research. Through the extensive interview series, it will leverage key takeaways from pedagogical thought leaders specialized in remote and hybrid learning, student engagement, design thinking, education technology, and change management.

Adapting to the new higher education normal: From recovery to business as (un)usual

Since the World Health Organization (WHO) Director General's declaration of covid-19 as global health pandemic on March 11, 2020, governments enforced lockdowns, travel restrictions and other sanitary measures reducing or banning internal and international mobility. Higher education institutions around the world were forced to close their premises and suspended international exchange programs. According to UNESCO, approximately 1.6 billion students across 190 countries—94% of the world's student population—had been affected by schools and higher education institutions closing their doors at the peak of the pandemic.[2]

As a result, remote learning has become invaluable to assuring the continuity of teaching and learning. While for some universities and colleges, using virtual tools was already in their blood; for others, it was a rather unexplored territory, meaning they had to rapidly transition from traditional brick-and-mortar delivery to remote or hybrid delivery models.

A shake-up of traditional higher education was already underway

Winds of change had already been blowing through the global higher education sector, comprising some 278 million learners worldwide across more than 24,000 universities and colleges, long before covid-19 emerged on the scene.[3] In fact, for many higher education leaders around the world, the implementation and refinement of digital learning, as an enhancement to traditional face-to-face teaching, was already high on the agenda for 2020.[4]

Driving this change were opportunities to enhance student experiences, reduce costs, attract international students and their spending power, as well as satisfy Generation Z's desire for more flexible learning. What's more, the sector undoubtedly put its money where its mouth is, with global edtech investments reaching US$18.66 billion in 2019[5] and the overall market for online education being projected to reach $350 billion by 2025.[6]

Most institutions were not yet on the digital transformation bandwagon

Despite digital learning investments pre-pandemic, along with the rise of alternative approaches such as e-universities, online certifications, microcredentials, and nanodegrees, most higher education institutions were still primarily analogue.[7] According to EIU survey insights, a striking 82% of faculty members cited that *less than half* of their

academic institutions' courses were offered remotely prior to covid-19. What's more, almost 1 in 5 faculty claimed that none of their institution's courses were offered remotely pre-pandemic.

Among US higher education institutions in particular, 9 in 10 US faculty members reported that less than half of their establishment's courses were offered remotely before covid-19. However, while Germany cited the lowest proportion of institutions offering less than 50% of classes remotely pre-pandemic, it tallied the highest *no remote course* offerings. These results indicate that Germany was in fact the least digitally-ready among the surveyed countries for covid-19's industry disruption.

9 in 10

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This aligns with recent reports on Germany's digital adoption. In fact, the European Commission issued an official statement in May 2020 that the country lagged behind other European countries when it came to digitisation.[8] In a sanctioned Council Recommendation on Germany's 2020 National Reform and Stability Programmes, the Commission highlighted that the nation's coverage of very-high capacity networks was 32.7% in 2019 compared to the European Union (EU) average of 44%, and fiber-to-premises was only 10.5% compared to the EU's 33.5% average.[9] As a result, the council advised Germany to take action to improve its digital services, infrastructure and skills.

In response to the accelerated urgency to boost digital infrastructure in light of covid-19, Germany's federal government approved the release of 100 million euros of emergency funding from their "Digital Pact for Schools" program, launched in March, 2019.[10]

Covid-19 as a change-accelerant

According to Michael Horn, co-founder of Clayton Christensen Institute for Disruptive Innovation, the pandemic has been a catalyst for accelerating widespread adoption at an unprecedented rate. "We've been entering a new paradigm for the last decade and covid-19 has just expedited this progress. It provided gasoline to trends that were already underway," he says.

Survey insights from this EIU study attest to this claim that the crisis has hit the industry's "fast-forward" button. In fact, now 83% of faculty members report that their institutions' courses will be conducted all or mostly remote this academic term, and 62% say their institutions' courses will be conducted all or mostly online for the coming academic year.

On the online course delivery spectrum, Germany is by far an outlier, with almost a third (28%) of its faculty reporting that their institutions' courses will still be *all or mostly in-person* this academic term—a stark discrepancy between Australia's 8%, the US'

16% and the UK's 18%. What's more, exactly double that number (58%) of German faculty cited all or mostly *in-person* courses at their institution this coming academic year, whereas all their global peers tallied over 60% for all or mostly *online* course delivery—72% in the UK, 70% in the US, and 62% in Australia.

Larger institutions are the most likely to conduct online courses for the coming academic term (94%), in comparison to mid-sized institutions (80%) and small institutions (77%). This pattern is reflected in longer-term institutional plans as well, with larger establishments also considerably more likely to offer online courses for the entire academic year—cited by 81%, compared to 71% of mid-size and 44% of small institutions.

According to a 2020 study by medRxiv, US higher education institution decisions whether to offer online or in-person classes in August 2020 hinged primarily on five key characteristics—product niche, finances, online readiness, faculty support, and enrollment pressure.[11] For example, two-year community colleges and lower-cost four-year public schools offer commodity educational products that compete largely on price within their local markets. By contrast, higher cost four-year public and private schools compete less on cost and more on the quality of the educational goods they purport to provide.

In light of this, the more exclusive the education, the less likely that online education is perceived as a viable substitute by students or administrators seeking to serve their institutional mission and keep students satisfied. Additionally, the medRxiv research indicated that institutions offering high-priced degrees are more limited in their ability to reduce prices and product offerings due to high fixed costs

and concerns about maintaining their brand. Concurrently, higher education institutions that are less financially secure may be more likely to provide in-person classes to retain students who do not want to take online courses.[12]

Charting the path ahead in the longer-term

The EIU survey insights indicate that remote learning is anticipated to evolve from a short-term band aid solution or pandemic experiment to a future operating model for many higher education institutions. A striking one third of faculty members report that their institution will permanently offer all or mostly online courses moving forward.

Australian faculty members are the most convinced, with over half (52%) claiming all or mostly online courses will be a permanent fixture at their institution.

Their northern hemisphere counterparts, however, are significantly less bullish on the idea, with less than one third (28%) of UK, only one quarter (25%) of German and just one fifth (20%) of US faculty citing it as a long-term solution.

1 in 3

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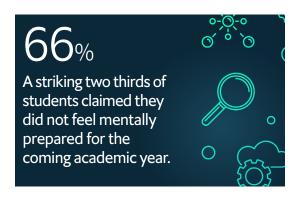# School of hard knocks: Unprecedented challenges amid an unprecedented crisis

The pandemic's discontinuation of on-campus learning has had an unequivocal, widespread impact on students, faculty, and the modus operandi of higher education institutions at-large. Not only has its disruption of traditional operations affected teaching and learning experiences, but the sudden, unplanned shift to digital modalities has prompted a reconfiguration of whole courses.

While this transition to remote education has offered valuable learning opportunities, it has also presented significant challenges to students and faculty alike—from change readiness and digital maturity to student engagement and equitable access.

Back to (virtual) school: Change readiness

A striking two thirds (66%) of students claimed they did not feel mentally prepared for the coming academic year. This was a shared sentiment among the student community in all four countries, but particularly in the UK (70%). What's more, 6 in 10 students reported not feeling academically prepared for the year ahead. This was again felt consistently across student populations in all regions, but slightly more among students in Germany (64%) and the UK (62%).

Higher education faculty, on the other hand, felt considerably more equipped for the coming academic year. Only 15% of faculty members reported not feeling prepared to

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effectively meet student needs given the resources and tools they had available.

Existing research drawn from surveys and in-depth interviews with higher education faculty and students indicate that many students often lack awareness of what is expected of them in an online course. For example, a high proportion of students expect that online courses will be easier than their face-to-face courses prior to participating in an online course. However, after their initial experience, many students report feeling that their online courses were in fact more difficult and time-consuming than their traditional face-to-face courses. According to the EIU survey, this is largely due to students having to spend more time scheduling, connecting with their professor and peers, and looking after their own mental and physical wellbeing.

Other qualitative insights from industry studies have identified a fundamental misalignment between higher education faculty members and students with regards to their expectations of each other.[13] For instance, students often want more from their faculty instructors

than instructors think they should provide—such as instructors playing a greater role in motivating and guiding students throughout the course. On the other hand, faculty instructors themselves often feel that their students are less prepared than they expected them to be upon enrollment, including in the self-directed learning skills and readiness to take complete responsibility for their online learning.[14]

Adapting to education's new "virtual reality" (without the goggles!)

In navigating the unchartered territory of higher education's new normal, the most significant challenge students have faced has been adjusting to remote learning environments. This transition has been particularly difficult for students at larger institutions, and especially first-year students.

Faculty sentiments directly correlated to those of students, with faculty members also citing adapting to remote environments as the biggest challenge they have faced since covid-19. Similarly, this has been felt by faculty at medium and large institutions the most.

While most faculty members expected they would need to invest time up-front to get familiar with the technology and set up digital classrooms, many were caught off-guard by just how much mental and emotional energy it required to effectively engage students remotely.[15]

For example, compared to on-campus classes that would convene 20 students two or three times per week, remote classes often need to be broken down into smaller groups or even one-on-one sessions to provide adequate attention to each student. In light of this, faculty members have had to focus on cultivating strong, trusted student-faculty relationships.

As classes log on, students log off

Many educators have arguably become students themselves in the transition to remote learning. For example, a key lesson higher education faculty members have learned in navigating the shift to remote education is that traditional class plans do not simply translate 1:1 digitally. In other words, faculty cannot just recreate their teaching approaches in physical settings across virtual platforms.

"Some faculty members are trying to teach their lectures exactly how they did before, but on video conferencing platforms," says Douglas Harris, professor and department chair of economics, Tulane University. "However, transitioning to an online environment doesn't just mean adopting new technologies to the same education methods. It changes the entire learning process, which means faculty must adapt their teaching approaches accordingly."

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Almost half (48%) of higher education students claim the pandemic has worsened their ability to remain focused and engaged. This has been particularly felt by students in the US, with 6 in 10 reporting lost focus and over half (52%) citing lost engagement since the outbreak of covid-19. One in four students across the surveyed countries claimed that covid-19 had affected the effectiveness of their study and their ability to learn.

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Keeping students engaged was one of faculty's biggest challenges, with 60% seeing a drop in engagement since covid-19. In virtual classes, learners need to be more self-motivated as there is minimal oversight and it is easy to become distracted. Students at larger institutions (with 15,000 or more pupils), where class sizes are likely greater, were even less engaged.

According to pedagogical experts interviewed for this report, the reason that engaging students online is exceedingly more difficult is because covid-19 has also led students to be more stressed, anxious, financially-challenged and socially-isolated. "The current situation is pushing faculty to realize that at the very least, students are not going to be able to learn in their class if they're suffering in other ways," says Mr Harris.

Shining a spotlight on education inequities

According to a July 2020 study carried out by US-based Hope Center for College Community and Justice, three in five of the 38,000 students surveyed reported experiencing basic needs insecurity.[16] "We learned that many of them were experiencing challenges with their mental health, had difficulty concentrating, and were faced with additional family responsibilities," says Sara Goldrick-Rab, president and founder of the Hope Center.

Students are not only finding it harder to meet their basic needs as the pandemic takes a toll on the economy, but the shift to online learning has also added pressure on them to access digital tools infrastructure and a quiet place to work. Both students and faculty members have encountered challenges with accessing quiet spaces to study or teach. "This has been felt especially among students and faculty who live in rural communities or in developing countries where there is limited Internet access or IT infrastructure to access online learning or teaching," says Michaela Martin, programme lead at the UNESCO International Institute for Educational Planning.

As per the 2020 EIU survey insights, higher education faculty members across the board agreed that institutions need to do more to cultivate a sense of community, and also provide mental health services. This aligns with a commonly-held viewpoint that educators need to do more than just impart knowledge, but actually have a critical responsibility for providing social and emotional learning (SEL) support to help students open up about their feelings, experiences and needs.

According to market projections from July 2020, the SEL market is slated to grow by 20.7% every year and reach a total of $4.64 billion by 2026.[17] Educators have been increasingly leveraging SEL tools to foster students' social skills and effectively gauge their emotions in order to help them better manage uncertainty and stress. Such tools include praise badges, emotional check-ins and digital feedback stickers.

Rebecca Frost Davis, associate vice president of St. Edward's University, reports that one of her teaching associates from The Centre for Teaching Excellence has tried an interesting SEL approach by using screenshots of different Baby Yoda expressions, numbered from one to nine, to encourage students to respond to how they are feeling. "Most of her students pick the screenshot of Baby Yoda looking sleepy," says Dr. Davis.

Bridging physical distance through social connection

The value of higher education extends far beyond coursework, grades or certifications to the connections that enable the critical development of social and emotional intelligence, self-awareness, and interpersonal skills.

According to the EIU study, nearly half of the students surveyed said the biggest social and environmental challenge in their post-pandemic learning experience has been the limited ability to engage with fellow students. More than one-third (31%) of faculty members also attributed limited social interaction and community-building opportunities as a key obstacle in their post-covid-19 teaching experience.

"One of the biggest factors that influences student engagement and performance is their sense of belonging in their higher education experience," says John Hattie, professor and director of Melbourne Education Research Institute. "This is what has suffered the most as a result of covid-19. They no longer have the same sense of belonging that they used to have."

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Beyond this integral social belonging element, according to Hattie, the pandemic has also driven post-graduate students to have considerably less opportunities with regards to research, jobs, career development, team collaboration or student-faculty collegiality overall.

According to the EIU survey data, over half (55%) of Australian students report being extremely concerned about getting a job after graduation —considerably higher than the average for all students (46%). This sentiment was shared by Australian faculty members as well, with two thirds claiming they were extremely more concerned about their job security than their transnational peers. This comes as students graduate into one of the hardest labour markets in decades, with the World Bank predicting the global economy will shrink by 5.2% this year, the deepest recession since the Second World War.[18]

Drawing from earlier recessions, an Institute for Fiscal Studies report in April said students who graduate this year will be less likely to find work, will earn less and given the scale of the downturn, predict it could take up to ten years for these effects to wear off.[19] A UK-based Sutton Trust survey in July showed 46% of students thought they were less likely to find a graduate job because of covid-19.[20] Also in the UK, graduate jobs website Milkround said in April their research showed 60% of Generation Z students found jobs before leaving university pre covid-19. Now only 18% had jobs lined up.[21]

Closing digital divides

To be successful in online learning, teachers and students need to be upskilled in using platforms, installing software, downloading and uploading documents and navigating the Internet. "It's a skillset to do online education well, and to really impact your students," says Stella L Smith, associate director, Minority Achievement, Creativity and High Ability (MACH III) Center, Prairie View A&M University.

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This was reflected among student perceptions in the EIU survey, given that almost half of students (47%) claimed they needed to spend more time and effort to successfully complete their course workload. What's more, the main driver behind this was adapting to new online and hybrid learning models, along with decreased mental or physical wellbeing, limited ability to engage with fellow students and increased workloads in general.

Equity issues also come into play with regards to course workloads. "While some students may struggle adapting to online learning environments, others might simply not have sufficient resources, such as access to technology equipment or a secure Internet connection," says Dr. Davis.

Strikingly, over half of the students surveyed reported being concerned about having sufficient access to the technology and digital tools necessary to join online classes. This was particularly the case for students who lived on campus. One third of students on the whole claimed that their biggest technological challenge in adapting to their new remote learning normal was adequate access to technology and a reliable high-speed Internet connection.

According to the survey insights, higher education students across the board are not optimistic that these digital divides will be bridged in the foreseeable future. Less than one third (32%) of students cited more equitable and inclusive access to the Internet and digital tools as a key driver of higher education transformation in the next five years.

A recent OECD report titled "What Students Learn Matters" highlights that technologies are

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developing at an unprecedented pace amid vast economic, societal and environmental changes. That said, because the need for curriculum redesign needs to be identified, decided upon and implemented first, there is often a time lag between the content students are taught today versus what they actually need to learn for the future.[22]

Making the (virtual) grade?

Taking all of these challenges into account, it is not surprising that the highest proportion of all students (46%) said they were concerned about their ability to achieve optimal grades. In fact, one third of students claimed the pandemic had already affected their ability to perform well in assessments. Faculty were aligned with students on this sentiment, with 7 in 10 claiming they were worried about their ability to deliver valuable learning experiences. This concern felt by an overwhelming majority of faculty presents a striking disparity with the overwhelming minority (15%) who admitted not feeling prepared to meet students needs this coming year, given the resources and tools they had available.

What this gap may very well reflect is the notion that often higher education faculty, especially esteemed academics, cannot admit they feel ill-prepared or incapable to achieve something, due to professional, personal, institutional, political or societal pressure, even if there is compelling evidence that suggests otherwise. It might also indicate that, most (85%) of faculty felt prepared to meet students needs in terms of having the right tools, technologies and resources, however, they felt much less confident about how to actually leverage these new tools and technologies to deliver the same valuable, high-quality learning experiences they used to in physical settings.

Leveraging technology to drive engaging learning experiences

With higher education institutions' vast expertise in knowledge production and dissemination, along with effective teaching and learning practices, they have a critical role to play in ensuring that the right to quality education and learning opportunities for all is not compromised by the pandemic. As a result, academic institutions and faculty members have looked to emerging technologies to deliver engaging, effective and valuable learning experiences that enhance student engagement and learning outcomes.

This has never been more imperative, given that today's higher education students are primarily Generation Z. Indeed, 94% of the students who answered the EIU survey were from this generation. Children who were born between 1995 and 2010 are a generation that grew up in the social media age, and consequently have higher technology expectations from their learning experiences. Only a tiny fraction (7%) of all students believe remote learning will not benefit their education, according to the EIU survey.

"To facilitate these higher expectations, colleges and schools have made investments to improve their capacity for engaging and impactful virtual programs, including technology, instructional designers and online learning centers," says Elizabeth Stroble, president of Webster University.

No one-size-fits-all approach

Universities and colleges now most commonly use video-conferencing, online platforms, web-based tools and live lectures to manage the impact of covid-19. Faculty and students agree these technologies and digital tools will become more important.

Around one in four faculty created hybrid learning models, upskilled staff and increased investment in technology, strategies respondents thought would continue long-term. But to boost learning outcomes, educators need to go beyond translating courses into video lectures, and move towards flexible learning options, like remote and blended lessons where students can mix and match.

Approximately half of the higher education students surveyed say they feel their school has prioritised this type of flexible learning to manage the impact of covid-19, and that this flexibility has benefited their education the most. One in four say it has saved them time in commuting to campus, while 36% benefited from more flexible learning schedules as well as being able to attend classes regardless of where they were.

Teachers also became flexible in how they assessed their students, and most (86%) faculty thought having flexible assessment and tools would continue long term. "We, like many of our peers, were intentional about giving the students greater latitude to choose pass/fail options and withdraw from courses at a later date than is typical. Those changes were made to reflect the incredible stress on students taking courses during the pandemic," says Christopher Morphew, dean of the John Hopkins School of Education.

Empowering students as active participants in their learning experience

For the most part, students said they wanted their online learning to be as engaging as in-person classes. When asked about what they thought would be the most effective way to boost their engagement, the highest number (30%) of students called for flexible learning methods and making learning as interactive as possible.

Active learning strategies are interactive, and encourage students to engage with the learning material, their teachers as well as their community of learners. Meta-analysis of studies show moving from an active learning environment to a passive one leads to a drop in grades, says Mr Horn. The key to making active learning work online is to leverage groups and technology to make students accountable and give them "skin in the game" to do the work, he says.

"Universities that adopt active learning platforms will gain in realizing how to create way more active seminars and engaged students that will inform instructional design," says Mr Horn. Both students (31%) and faculty (39%) agreed the pandemic will transform higher education by empowering students to take a more active role in their learning.

A key tool to use alongside active learning is one that helps monitor student engagement. Edtech companies like Discourse Analytics leverage predictive analytics to improve student outcomes through personalized messages and advising, and maximize tuition deposit rates by minimizing yields through 1:1 conversations. Universities and colleges have also implemented virtual student success portals such as Campus Logic and Anthology in order to monitor and mitigate student retention risks.

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Back to the future classrooms: From blended to extended reality

Alongside adopting tools that foster collaboration for active learning, other promising tools offer simulation and real-life scenarios. And they come at a crucial time, according to Mr Morphew, who believes covid-19 has shown how learning management systems upon which courses are based are insufficient, and a "revolutionary" approach is needed to bridge the void. Morphew believes systems should integrate simulations and next generation technologies like virtual reality and augmented reality to "provide the greatest benefits to learners and academic institutions and transform the teaching and learning landscape."

Students too thought more could be done— only 22% were very satisfied with their school's adoption of tech and digital tools since covid-19. And one quarter said their school was not equipped at all when it came to interactive simulations and games. A 2020 meta-analysis shows that simulations are among the most effective means to facilitate learning of complex skills, leading educators to look at how games might be used to boost learning objectives.[23,24]

Innovative schools like St. Edward's University already use virtual anatomy, virtual internships, virtual counselling and virtual student teaching, says Dr. Davis. One teacher even set up a virtual crime scene using 3D cameras, allowing students to go places they couldn't normally go. "Another study suggests that students who had done a physics lab simulation first did better on a physical exam because they weren't distracted by things when they were learning," says Dr. Davis.[25]

During the pandemic teachers have also become more creative, which can have far-reaching benefits beyond the school. "If you do events online, you can open it up to everyone. People are engaging with it and it continues to live in social media. We are more sensitised and creative about what can be done," said Dr Smith.

Students appeared pretty confident in their teachers' ability in a virtual world. Only 21% said they weren't confident their professors would deliver engaging and valuable learning experiences this academic term, and that dropped to 17% looking ahead.

Hard realities, high hopes: Reimagining higher education for a better future

While there are still many unknowns about the lasting impact covid-19 will have on higher education at-large, according to the 2020 EIU survey, faculty members across-the-board (85%) are convinced that the crisis has accelerated the future of the virtual education revolution by a decade. Market insights reveal that, as a result of covid-19, the first half of 2020 was the largest half year for global edtech investment in over 10 years— at $4.5 billion—three times greater than the average 6-months of investment in the prior decade.

In order to successfully navigate this new normal, however, higher education will have to evolve and transform—with 57% of faculty and 47% of students claiming that covid-19 will transform the sector by triggering a rise in online course offerings.[25]

Alongside a striking 72% of faculty members predicting, in the long-term, that all courses will shift to online-only, more than 81% anticipate the creation of a hybrid learning model. Over 90% believe staff will be upskilled with the digital competencies required for online teaching, and 85% anticipate increased investments in technology.

One third of students agree that a top priority to transform higher education will be to give educators the right tools and training, a view echoed by 40% of all faculty. Indeed, faculty reported that digital training and the provision of technology were resources readily-available to them.

Students are clear they want their needs put first, whilst at the same time being kept safe from the virus, putting pressure on educators to deliver and on institutions to demonstrate greater value.[26]

"There is a push for higher education in the United States particularly to show greater value and a return on investment. As a result, students are looking for the best value in terms of what they are getting from their higher education and what they will be able to do in the workforce," says Dr Smith.

A renewed focus on teaching

The pandemic has forced educators to rethink how teaching can best be used to deliver high teaching outcomes. Teachers in higher education are typically hired based on their research, and covid-19 is offering an opportunity to move the pedagogical needle. "We need to encourage the sector to focus on learning how to teach," said Mr Hattie, who has written books advising teachers to measure their work by looking at their impact on student achievement.

Three quarters of students agree that technology and digital tools will not be a replacement for actual teachers and professors. A shared sentiment among the experts we interviewed was that in-person learning is often integral to cultivating higher-level cognitive skills such as critical thinking, problem solving, and decision making.

This poses whole new questions for the future of higher education. After all, it is precisely in moments of crisis, like pandemics, that silver linings can present themselves and new opportunities can be seized. In light of this, what fundamental lessons can pedagogical leaders around the world learn from covid-19 to shape a more equitable, inclusive and resilient higher education system for the future? How can academic institutions and professors further push the envelope of remote and hybrid learning so it becomes just as—if not more—effective at driving valuable education experiences and outcomes, as in-person classes?

"What will be pivotal to making sure online education meets certain standards is to work with quality assurance agencies," says Ms Martin. Looking at the quality of teaching and setting minimum standards is important because just over half of students said they had lost confidence in the value of a university/college education and were worried about developing the skills and knowledge they needed to get a job after graduating.

Fostering cross-sector partnerships

Faculty almost universally believe that to deliver successful digital learning, academic institutions will need to increase their use of emerging technologies, embrace tech partnerships and digital transformation to keep up with student needs and expectations and develop more agile and flexible strategies.

On top of that, offering remote courses will allow higher education institutions to increase their revenue stream, says Mr Harris. All stakeholders—students, teachers, governments, corporates

and tech partners—have multiple responsibilities and will need to work together to ensure high-quality, engaging learning experiences. Boards too will need to be reviewed.[27]

"Businesses have been particularly adept at fostering innovations, and universities need to catch up," says Mr Hattie.

The mastery vs. seat-time debate: Competency-based learning is on the rise

A recent survey of 2,200 teenagers showed half were open to getting something other than a four-year degree.[28] Indeed 40% of students and 30% of faculty thought the redefining of learning time structures—from entire-day classes to competency courses where students learn at their own pace—would transform higher education over the next five years.

"An interesting discussion is the idea of allowing learners (not just students) throughout their life to accumulate credits, maybe through MOOCs, maybe through micro credentials, or maybe through recognised learning in the workplace," says Ms Martin. "The industry must also allow for a much broader definition of competencies acquired rather than just looking at what students acquire over a 3 to 4-year degree in a highly-structured program."

For example, students could get stackable credits and degrees, or micro-masters from different higher education institutions as they pursue lifelong learning. This comes as demand for online and third party courses have surged during the pandemic, and could potentially all be used to build credits.

Conclusion | Covid-19's silver lining: A testament to higher education's ability to change

A key silver lining from covid-19's cloud of disruption is its shattering of higher education's stereotype of being slow to respond to change and wedded to tradition. If anything, the sector's response to the pandemic has underscored its ability to pivot rapidly and embrace a new pedagogical model.

Even some of the less digitally-savvy universities and colleges that may have previously kicked their tires to adopt online or hybrid education have quickly transitioned to new institutional models and delivery mechanisms. While this transformative shift has certainly presented significant challenges to faculty members and students alike, it has also unleashed pivotal opportunities for an industry that has traditionally focused more on the research its educators produce, rather than the quality of their teaching.[29]

"I'm very hopeful of what can come out of covid-19 in terms of developing strategies for more equitable teaching for all students as we have to problem solve around challenges with digital divide and technology," says Dr Smith. "I'm hopeful that people can now see the challenges that were around in education for a long time."

As a disease indiscriminate in its spread, but discriminant in its impact on the world's most vulnerable, covid-19 has been a wake-up call for the fact that infectious diseases know no borders. Nor do other transnational crises we face—from trade wars to economic recessions to

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> Dr. Stella L Smith, associate director, MACH III Center, Prairie View A&M University

natural disasters—which will only become more frequent in today's increasingly-connected world.

"We're at an inflection point where there is a lot of risk and we're going to see some fantastic transformation. We need to be very careful of what we could potentially lose in the process, especially with regards to students and faculty who are most at risk," says Dr Davis.

Shifting from emergency operation mode to fully embracing new flexible learning models will be critical for the higher education sector to not only survive, but thrive, amid covid-19 and beyond. To rise to the occasion, pedagogical leaders around the world must heed covid-19's wake-up call and unite to give higher education the "teeth" it needs to strengthen global resilience both now and when the next crisis emerges.

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