The future is now: Imagining university life in a post COVID-19 world

The disruption of higher learning in 2020 is prompting many universities to consider their best path to a sustainable future. What will that mean for campus design and how will it impact the next generation of students?

One of the most emotive topics during the ongoing COVID-19 crisis has been the impact on schools and children’s learning. Learning institutes in most parts of Asia and the rest of the world immediately switched to distance learning in light of the national lockdowns. As these lockdowns eased, getting schools open has been a top priority for many countries, including Thailand, Vietnam and Malaysia.

However, with COVID-19 restrictions continuing in many areas, a wider discussion is also back in the spotlight over the future of education, particularly the role of universities and other institutes of higher learning. The traditional lecture model – where students gather in a theatre to listen to a professor – is ripe for disruption. The set-up has changed relatively little over the past 200 years despite a major shift in technology and the economic landscape.
A new model of learning, Education 4.0, has been talked about for some time, but, as with so many other issues, COVID-19 has become a catalyst to progressing this evolution. At its heart, Education 4.0 is about re-thinking education at all stages of a person’s schooling.

Among other things, it embraces technology-enhanced learning experiences that will create graduates who are more empowered and equipped with both the digital and social-emotional skills that tomorrow’s fast-changing work landscapes will require.

This shift in thinking around how our younger generation is educated also comes at a time when many universities are seeking to change their structure, both to re-position themselves as more financially viable and to ensure they remain future-ready for the long-term.

**Campus design post COVID-19**

In a new future for higher learning facilities, one of the most important considerations will be how to shape the use of physical spaces. With the anticipated changes in the education process, some of the existing areas in universities will need to be repurposed, and new build locations will need a different approach to design and purpose.

This kind of change is something that has been seen across other industries and, for engineers, it means being more open-minded and creative in their design. In the past, the purpose of a building has generally been clear from the outset (a hospital is a hospital; a cinema is a cinema), but in tomorrow’s world, engineers must design for agility, with a human-centred approach, to ensure developments are resilient.

Delivering success in buildings of the future depends on design-led thinking, such as the kind needed to turn a redundant textile mill into a start-up incubator, create a hospital with offices that can transform into operating theatres or develop a data centre with capabilities not seen before in the market.

**Hybrid higher learning**

Despite challenges, the transition to online lectures for Asia’s university students has begun. Multiple advantages have been uncovered with the transition to online teaching. With lectures pre-recorded, students can view them at their preferred time and location. Learning via lecture recordings also allows the student to pause for notes or rewind to listen to a concept again.

While lecture halls, and indeed many larger classrooms, will find themselves empty, face to face interaction will remain a crucial part of higher learning. Campus life includes socialising, building relationships and working collaboratively and this will continue as part of the education and character building journey.

All of which means that in the near term, our university campus designs will be a hybrid of our familiar campus and new (or repurposed) spaces for different uses. New education facilities will be designed with better versatility to accommodate flexibility of usages. This will allow them to adapt when needed and incorporate modern technology that is growing in importance in education. More breakout areas will allow students to collaborate, but most likely in smaller groups.
Industry collaboration

Another important factor in how we consider the design of our future universities is a re-evaluation of their purpose and how they serve their communities. While it is easy to imagine how technology or changes to physical spaces will impact higher learning, predicting how the purpose of universities might change is harder.

But given their need to remain financially viable, commercial partnerships with companies, government bodies or other large institutions will continue. These are nothing new of course: Asia is peppered with examples, from Rolls-Royce, Samsung, Alibaba and many others, and we can expect the appetite for these collaborations to increase.

In these commercial tie-ups, both parties stand to gain. Universities get much needed funds, credibility and the opportunity for students to work in real-world project scenarios. Organisations get access to talent and a wider pool of research. One added advantage in the current environment is that it connects the re-purposing of space at universities, this comes at a time when many companies are also looking to create future-ready workspaces and give employees more flexibility to work from other locations.

Might we see commercial partnerships in universities that combine research with the relocation of offices to campus space? Could we see start-up incubators or serviced office space being developed in re-purposed areas on campus? This could be made available to the wider business community as well as graduates.

Digital tools: the key to future sustainability

With so many possibilities for future university designs, the question of how to develop a campus that is both versatile and future-proofed is an important one. The answer is digital engineering. Digital tools, underpinned by domain expertise, are radically transforming engineering and design, pushing us into an exciting new future.

At Aurecon, we have established a large facility to manage this in our projects at our Regional Centre of Excellence for Digital Engineering in Asia. Digital tools, such as Building Information Modelling (BIM), provide limitless possibilities, allowing engineers to increase the speed of design, automate much of the process and better understand how buildings will perform.

Experimenting with a wider variety of designs can be done at the click of a mouse, showing us not only how changes impact the engineering of a building but also its architecture, interior and other aspects.

Another exciting technology with great potential is the use of digital twins in the design of new developments. While it remains relatively uncommon in the construction sector, we are already harnessing this approach to understand how our designs will perform over their lifetime, and using it as a stepping stone to gain a more sophisticated understanding of their future potential.

With so much flexibility and adaptability needed for tomorrow’s university designs, creating digital twins of designs can give us immediate feedback on how viable our proposals are, helping guide the delivery of developments that are ideally suited to their purpose.
Using digital technology to design our future universities is perhaps the most critical aspect in determining their success, particularly given their need to adapt to a new future in a changed world. Consider, for example, the changing nature of our workplaces. Many of the jobs we saw 10 or 15 years ago no longer exist.

With the current rate of disruption, will today’s roles still exist in 10 years? It is impossible to say, but what it could mean is that students’ ties with universities stretch beyond the traditional three or four year study periods and run the course of a career. Again, this has a huge impact on how universities need to consider both their role and their design.

The key in all this is change. Resiliency in university design must centre on flexibility: adaptability to a changing world and versatility to change purpose. To engineer this requires skill, creativity and an ability to imagine our future. Education is big business: in 2019, the U.S. welcomed a record number of international students, with Asia contributing a significant portion.

In Australia, it is the country’s third largest export, and accounts for AUD32 billion in revenue with students from China, India and Malaysia heavy contributors. With the model of Asian students studying abroad losing a lot of its shine in 2020, might we also see more international universities looking to establish new campuses in more geographically convenient locations for the continent?

The history of students in Asia traveling to Australia, North America and Europe for tertiary education stretches back decades. While the number of students choosing to study abroad has increased steadily over the years, the recent COVID-19 lockdowns have seen many thousands of students experience significant disruption to their studies.

With the maturity of the local education sector, the coming generation of Asian students may be inclined to seek university education closer to home, this could mean more international universities will look to establish new campuses across the continent, signalling a bright new future for education in this region.

But perhaps the most important point to remember is that our universities are in a perilous position and education is a key contributor to the advancement of our societies. By re-shaping our universities, we not only have an opportunity to ensure they survive but in doing so we have the chance to position our societies towards how we would like them to be, with the foundation and people to deliver an exciting new future.

**Future lessons: what will tomorrow’s classrooms look like?**

Associate Professor May Lim, Director of the Centre for Learning Environment and Assessment Development (CoLEAD) of Singapore Institute of Technology shares her thoughts on how the forward-looking university sees its teaching rooms taking shape in the future.

- Even in a post-COVID landscape we imagine that greater social distancing will be commonplace, so we envisage
- Interactive ‘lectures’ can be followed up with face-to-face sessions where students meet together to discuss, debate and
- Future classrooms will feature more automated and hands-free technology. Elsewhere, we will increasingly see touchless

lower density classrooms and students spaced one metre apart. Having room dividers and flexible furniture will give us the ability to shape the classroom according to different needs.

For a while now, we have seen students prefer small groups, collaborating rather than attending lectures. To cater to this, we will have more active learning classrooms with flexible furniture. We do not expect to have so many lecture theatres as we have seen how effective it is to deliver interactive ‘lectures’ via platforms such as Zoom.

clarify doubts with their instructors. Such in-person meet ups remain important for building rapport and trust with peers and educators.

To accommodate students who may not be able join a class physically (be it one with a mild cold, or an working adult who cannot end work in time to commute), hybrid classes can take place if there are equipment that can live-stream and caption rapidly.

Strategically-positioned microphones will enhance acoustics by picking up voices from students who raise comments from different corners of the room. Instructors may also be fitted with sensors, allowing the camera to follow their movements while they speak.

lighting, motion-sensor activated doors, voice-activated elevators and more. Notepads and pens will be replaced by collaborative software, allowing students to create materials together online, both face-to-face, and remotely.

At SIT, we see a bright and changed future for education – one where technology, collaboration and sustainability thrive.

This paper is part of a collection of insights and expertise from Aurecon as it explores leading through and beyond the COVID-19 disruption. Explore our insights here.

About the Author

Liak Goh is a Practice Leader for Built Environment at Aurecon, an international engineering, design and advisory firm. He has more than 17 years of experience in construction engineering design, project management and real estate. During his career, he has implemented cutting edge technologies into complex and high-profile projects and have delivered successful outcomes.

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