How might universities respond to COVID-19? Operative lessons from the Christchurch earthquake experience

As universities around the world grapple with a myriad of complex questions spawned from the continued emergence of COVID-19, two statements commonly prevail in operational communications:

1) Our highest priority is the safety (a.k.a. health, well-being) of our students and staff.

2) Instructors should NOT alter (i.e., depart from stated learning objectives, depart from stated assessment guidelines, use past course content without revision) course modality (e.g., content, delivery, schedules) without direction and / or permission from the university.

The latter comment sparks anxiety amongst many university educators, who grapple to make sense of their course curricula in a dynamic and highly uncertain workplace. The sentiment could be expanded to include research activities, since many academics also supervise postgraduate students and researchers as part of their education portfolio. The operational motive seems to be to ensure students that their educational experience can be completed with a sense of structure and normalcy, despite the changing conditions around us.

With more than 400 million tertiary students now disrupted due to the spread of COVID-19, the question of how to achieve balance between delivering an 'uninterrupted' and consistent education whilst ensuring one's personal well-being is of global relevance. And with younger children being sent home from schools and requiring care, reduced availability of basic resources, job losses, and business closures, it is important to recognize the diversity and complexity of challenges facing all of us in the university community and beyond.

The purpose of this article is to briefly share elements of my cathartic experience as a university teacher, researcher, and leader at the University of Canterbury in Christchurch, New Zealand throughout the 2010-2011 Canterbury earthquake sequence. While the stimulating phenomena differ from the COVID-19 experience, the lessons learned have many relatable and transcendent properties.

University closures during the Canterbury earthquake sequence

Immediately following the 4 September 2010 Darfield earthquake in New Zealand's South Island, the University of Canterbury was closed for 9 days so that buildings could be inspected. Campus health and safety measures were considered and implemented. Most regular teaching and research activities resumed after this period.

Following the 22nd February 2011 Christchurch earthquake, which caused 185 fatalities, the University was immediately evacuated and remained closed for four weeks. The earthquake occurred at 12:51 p.m. on only the second day of the first teaching semester. Some campus buildings used regularly for teaching and research were permanently closed and subsequently demolished. The government declared a national state of emergency that lasted 9 weeks. Many university staff and students experienced trauma, financial pressures, and extreme anxiety over the uncertainty of their immediate future, all within the broader context of business closures and loss of employment. The university was closed for another week following a major earthquake on 13th June 2011.

From September 2010 onward, university academics regularly operated in a fluid and highly uncertain environment, where university closures could occur at any time, for an indeterminate period, and without warning. Sound familiar? It's useful to contextualize our current COVID-19 scenario against the Christchurch experience.

University closures and teaching

The University of Canterbury teaching semester in 2010 was reduced by one week due to Darfield earthquake. The University permitted educators to make autonomous decisions as to how to best adjust their curricula and assessments to accommodate this reduction in contact hours. As pressure on academics involved in earthquake research and communication response activities mounted, a small cohort of academics leading these activities were strategically relieved from some of their teaching and administration duties so that they could invest completely. Some compassionate leave was also granted.

Following the Christchurch earthquake in February 2011, the start of the University teaching schedule was delayed by four weeks. The teaching semester was reduced from 12 weeks to 11. The mid-semester break was reduced from three weeks to a single week. When the University reopened, many of the buildings used for lectures and practical classes remained closed, and there was considerable uncertainty as to when these were going to become available. The loss of teaching facilities meant that many educators had to rapidly make changes in course delivery and assessment to reduce uncertainty for students. For many courses, lecture recordings (including ones from the prior year that some educators did not revise) were made available to students online so that they could complete the first part of their courses digitally. For some courses, questions arising from lecture reviews were addressed in weekly tutorials held in large, temporary tents erected in university car parks to serve as temporary teaching spaces. In some instances, course curricula were immediately changed to focus on the emerging science of their earthquakes and their socio-economic impacts. Some lecturers replaced face-to-face lecture times with video links to on-line lectures on related topics, and handled question and answer periods through the internet. Some courses had to replace scheduled assessments with other types of assessments at different intervals due to a lack of facilities that could host the former.

The June 2011 earthquake occurred on the first day of a study break prior to the end-of-term examinations. The earthquake caused loss of power, water, and sewerage in many parts of Christchurch where students were studying and caused more infrastructure and socio-economic disruptions. Nonetheless, final examinations proceeded over the next two weeks as scheduled, without interruption. In recognition of the potential for adverse effects to have impacted students, the University changed its assessment policy to broaden the scope for applications for special consideration and guaranteed they would be accepted. Approximately 18 times more special consideration applications were received for one course.

In evaluating student evaluations of my own courses from that time, and those of others, against preceding results, some interesting patterns emerge. For some of the most disrupted courses, no significant differences were found in how the students assessed course organisation, stimulation of interest, or overall assessment. Some aspects relating to course assessment changes were criticized. If communications are handed well, students will accept innovative and non-traditional changes to the way material is delivered, the actual content, and even the assessment. Data on student grades suggest that the atypical course delivery was sufficient to prepare the students for their following

academic year and dismissed concerns that passes granted to students with special consideration weakened the cohort moving forward.

Some important lessons emerge from this experience:

(1) University leaders should focus on empowering academics with the autonomy to seek creative solutions to achieve educational innovations. Hierarchical 'business-as-usual' course change protocols can be quite impractical in crisis situations, when workloads of those delivering material and evaluating course change proposals increase dramatically, when advice may be ignored, and when submitters and approvers under increased stress may be highly prone to heuristics (mental shortcuts). Whilst leaders may consider aspects such as giving all students automatic special considerations to recognize stresses associated with COVID-19, it is imperative that educators be enabled to rapidly develop in-course assessments now, so that more informed decision-making on student achievements can be made in our uncertain future, when new challenges in assessments may arise.

(2) University lectures should focus energy on creating innovative pedagogic experiences, being resourceful, and accepting that achieving all pre-crisis standards may not be possible, or even desirable, in this new environment. If the context and nature of course changes including assessment are well communicated, and universities develop transparent and equitable policies towards student assessment, many students will embrace the challenge of operating in a dynamic educational environment. Poor lecture attendance was an emergent issue long before COVID-19; perhaps the innovations developed as we respond to this crisis will better equip us for enhancing the student experience in the long run and form a more permanent component in our future teaching. Students also appear unlikely to punish academics in their course surveys for diverse pedagogic approaches to ensuring their needs are met, even where these differ significantly from course handbook entries.

(3) Students should focus on accepting that the university context in which they now reside is changed. They should appreciate that many of their educators will face major challenges both within and outside their workplace. They should trust that universities will seek to act in their best interests, to ensure that every opportunity for equity and success is explored, but also to appreciate that they are unique individuals that reside within a complex organism with many moving parts. Some processes need to be generalized so that we all can operate. Further, emergent societal challenges such as that which we now face create tremendous opportunities for student learning, for intellectual debate, and for contributing to society at large. Our experiences with students throughout the Christchurch earthquake crisis was that many of them thrived in this new environment of a shared experience with adversity, that they worked hard and partied hard, and that their worst fears of poor academic achievement and adverse career impacts were never realized.

University closures and research

Following the Darfield earthquake and other major aftershocks that caused campus closures, staff could still be granted limited access to equipment, laboratories, office computers, and other essentials on a case-by-case basis. The constant aftershocks meant the risk of exposure to building collapse or related hazards had to be weighed against the importance of access. Decisions to allow scientists to save plants and animals from laboratories, and to access field equipment necessary for responding to the disaster were generally enacted.

Some academics directly involved in earthquake-response activities were strategically relieved from regular teaching and administration duties so that they could invest fully in earthquake-related research and community outreach. Some compassionate leave was also granted.

Many postgraduate graduate students from diverse fields were temporarily or even permanently re-routed from their planned research topics into topics related to the earthquakes. Most did so voluntarily, and without clear indications of what the implications of their involvement meant for their theses, their graduation timelines and funding, and their future careers. And almost ubiquitously, postgraduate researchers involved in earthquake-related research across the range of physical and social sciences, arts and humanities, benefited immensely from their involvement, both personally and professionally.

Since the 4th of September 2010, I have dedicated most of my intellectual endeavour to pursuing knowledge of the complex physical and social environment that emerged from the seismic rupture of faults near Christchurch, New Zealand. By far the most difficult element of the experience is to draw meaningful conclusions from the wicked, multi-dimensional socio-scientific problems, most of which are plagued by partial knowledge, bias, incomplete data, and my own fragmented memory. However, some of the most insightful lessons have also been gained simply through the careful documentation and analysis of diverse effects, approaches, and data from the physical and social world.

From these experiences, some COVID-19 relevant lessons emerge:

(1) University leaders should encourage strategic deployment of talented researchers to COVID-19 related research and create the necessary resources to enable this. Facilitating medical and social research is obvious; but virtually every university employee in every department and faculty is a data source and documenting diverse approaches to tackling COVID-19 related challenges is important. How different universities and their constituents variably react to COVID-19 challenges now provide research and learning opportunities of global relevance, but these types of actions are rarely documented and rigorously analysed in international literature.

2) University academics should consider whether deployment of postgraduate researchers to COVID-19 related topics, even for students who have are advanced on other topics or working in seemingly irrelevant fields, is feasible. Intellectual analysis of our globally shared experience requires strategic effort that transcends the search for a vaccine. The global socio-economic impacts of this crisis are cascading in unfathomable scale and complexity and require great thinkers to assist with solutions. And there will be more pandemics, just as there have been past pandemics, from which our acquired knowledge basis may be relevant across a variety of intellectual and operative scales.

3) Finally, we must try to document our thought processes at distinct junctures in time. This may help us better analyse how human behaviours evolve when faced with complex challenges and uncertainty. This is data we need, before it becomes lost, if we are to better understand each other when faced with adversity.

To the end of the latter, I confess: a month ago I was rather disinterested in COVID-19 and its potential global impacts. I found some empathy for affected communities, but my intellectual foci were largely elsewhere, and I existed within a spatiotemporal context where sweeping changes were yet to take shape. This is the remote disaster effect.

Subsequently, the challenges have increased in frequency and proximity and my interest has matched this. I'm interested to learn that many leading institutions in the U.S. have implemented

deliberate slowing of on-campus research activities, including laboratory and human subjects research, excluding COVID-19 related research. Minimal access to laboratories is allowed for critical activities, such as maintaining animals, unique reagents, and essential equipment and materials, however embarking on new initiatives that may require time-intensive activities in the workplace is discouraged. Activities that can be conducted from home, such as grant and research article writing, on-line student meetings, are increasingly encouraged. While some Australian universities have implemented similar closures and limitations, research activities at many universities have yet to be significantly impacted by COVID-19. In these instances, a mix of more online communications, accepted social distancing, and hygiene measures are being used to reduce exposure risks. Decisions to come to work, or not, are to be made by individuals, except in cases of COVID-19 diagnosis.

As I write this article at The University of Melbourne, the bars, cafes, and restaurants outside my office are buzzing with the vibrancy of a warm Melbourne evening. The social distancing protocols officially encouraged at work are commonly ignored; and many who have been sent home from closing workplaces and universities are out-in-force. During the daytime, the workplace is eerily quiet, while many typically tranquil suburban parks and streets are abuzz with unprecedented weekday activities and social gatherings. There is indeed a dramatic social, health, and geographic experiment afoot.

Universities could, and arguably should, act as leaders in their responses to COVID-19. Many universities are undertaking key research that will help society limit the damage COVID-19 will do over the coming months, so the actions and policies of these universities are closely watched by many in the community. This gives universities the opportunity to help guide the broader community in developing and implementing effective policies aimed to limit the effects of this pandemic. The effects of such policy development at Australian universities, for example, could then be felt much further afield as well as other institutions and businesses follow suit.

In considering whether Australian universities should seek to stay open for business, even if more cases of COVID-19 are reported, I wonder what the exposure risk matrix for the undiagnosed employee looks like. Are those who are not self-isolating but not at work more at risk? What cascading effects are university closures having on the social, emotional, and economic well-being of individuals and societies? Do alternatives for those who depend on the university environment as providing a place for intellectual stimulation and refuge exist? Many of these questions reside in a context that is necessarily regulated by governments and other authorities, and thus personal choice, however informed, may be overruled. However, as critics and consciences of society, academics should continue to document experiences, analyse them, and seek solutions. The world needs us now more than ever to be nimble, creative, and optimistically realist.

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