

It's time to rebuild the university on a foundation of interdisciplinarity

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I was speaking to a colleague recently and he remarked that the Covid-19 pandemic is an extinction-level event – those of us who fail to adapt will simply cease to be.

Covid-19 has turned the world upside down. At the global level, economies have shut down, supply chains have broken, and all forms of travel have come to a virtual halt. In our everyday lives, the pandemic has profoundly affected our relationships, our daily movements, our work, and our leisure.

For universities, polytechnics, schools and other institutes of learning, we have had to radically change how we teach and learn; how we conduct assessments and examinations; and how we conduct research. Indeed, one upside of Covid-19 is that it forced through many changes that we wanted to implement, but did not, because of complacency and, in some cases, resistance.

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Is interdisciplinary research really the best way to tackle global challenges?

If Covid-19 truly is an existential crisis, then it should make us reflect on existential questions. For example, before the pandemic hit us, universities tended to see their biggest challenge mainly in economic terms: how to prepare our graduates for a world of artificial intelligence, robots, and ever quicker rates of job obsolescence.

With Covid-19, all these challenges not only remain but are heightened. These challenges now have to be tackled in a world where all our assumptions are called into question: what will our students desire in this changed world, beyond a job and an income? What does happiness mean in this new world? How do we define success?

As president of the National University of Singapore, my job isn't simply to help my graduates find jobs in this "new normal", but also to educate them so that they can make sense of all these confusing changes and to shape the new reality. Equally important, universities must also rethink how we do research, and what is it that we research.

Covid-19 is a complex problem. It goes beyond healthcare, with broader implications for society, politics, the economy, and the environment. It cuts across disciplinary boundaries; requires integrating knowledge, skills and insights from different domains; and defies established templates. It is also a precursor of the types of problems we will be facing with increasing frequency.

We therefore need to broaden the intellectual foundations of our students, the problem-solvers of the future. Disciplinary mastery is still necessary, but will not be sufficient. We need to cultivate in our students the ability to synthesise knowledge from across different fields. The key to this is to broaden the curriculum and increase interdisciplinarity in our curricula, regardless of the discipline or specialisation chosen.

We have had interdisciplinary courses in our curricula for a while, but mostly at the more advanced levels. Typically, two or three professors teach such a course, but instead of focusing on cross-disciplinary thinking skills and generating synergies between their respective disciplines, they emphasise their own subjects and expect students to make the connections themselves.

We need to go beyond this. To better prepare our students to fulfil their aspirations and to solve society's future problems, we need to incorporate interdisciplinarity explicitly across all levels, and especially teach these skills of synthesis at the foundational level.

As a lifelong academic and educator, I acknowledge that this is difficult to accomplish. But I strongly believe that this is how university education needs to transform. There will no doubt be resistance. In Singapore and many other places, we tend to privilege the specialist over the generalist. Our tendency towards *kiasu*-ism, that extreme pursuit of excellence, also means we often “over teach”.

Because of time limitations, introducing interdisciplinary elements into our curricula means reducing what is deemed core. This could be perceived as compromising on rigour. Furthermore, the students themselves – and their parents and guardians too – may be uncomfortable with these changes. These are legitimate concerns, and we will have to think carefully and debate how we manage the depth and breadth of our curricula.

More than ever, a university must take seriously their civic duty to educate all who come through its gates, no matter how old. For too long, there has been an overly-drawn dichotomy between teaching and research. Worse, some believe that teaching is subordinate to research. That point of view is misguided, and does a great disservice to society, especially when it involves a publicly funded university. The famous physicist and Nobel laureate Richard Feynman believed that if scientists or teachers were unable to explain complex concepts or ideas in clear and simple terms, then they had not grasped it themselves. Being a good teacher can make one a better researcher. Our professors might also learn a thing or two from their students. Hence, we need to tighten the loop between teaching and research.

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We therefore also need to consider what the faculty of the future will look like because what holds true for students must also hold true for professors; our researchers must also embrace interdisciplinarity. This is possibly an even bigger challenge. Universities are extremely siloed organisations and the academic enterprise is one that has traditionally rewarded depth and specialisation. But this way of organising the university is no longer adequate for a world whose problems do not respect such disciplinary boundaries.

Many a university leader has tried and failed to shift the research enterprise towards greater interdisciplinarity. However, Covid-19 and the other grand challenges rushing towards us defy rigid and narrow thinking. To solve these complex problems for society and to improve the world requires a conversation among scientists and artists, historians and computer scientists, writers of code and writers of poetry, and pulling together the different talents we have in our midst.

As the consequences of Covid-19 unfold over the coming months and years, many universities will fall by the wayside, because of funding cuts and falling enrolment. The bigger question is whether the idea of the university itself is still fit for purpose. This

pandemic is a chance to reimagine the university, and in doing so, catalyse a better world.

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