

By Invitation

Whither higher education?

Earlier this month, the National University of Singapore announced that in place of a three- or four-year programme leading to a degree, it would commit itself to a two-decade relationship with students. Is it time to rethink the role of higher education?



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For *The Straits Times*

For centuries, universities have operated on the assumption that three or four years of study sufficiently prepare most graduates for a lifetime of employment. The origins of that model lie in mediaeval Europe, though it became widely available to women only less than 100 years ago.

Over the course of that past century, two factors have called into question whether the degree-based system of tertiary education remains fit for purpose.

The first is that our lives are now much longer. Since 1900, average human life expectancy has more than doubled. Yet our education, work and retirement patterns remain essentially the same. Most of that additional time has gone into our retirement years; as that age is pushed back and our working lives are extended, philosopher John Ralston Saul, among others, has argued that we should spend a larger proportion of our life getting better educated.

The second is the transformation of employment. When workers stayed with a single company for decades, on-the-job training might reasonably be expected to keep them up to date in their field.

Some specialised disciplines like law and medicine already impose formal obligations for continuing professional development. But, for the most part, employees have been left to fend for themselves. This becomes a problem when, as a study by LinkedIn shows, people are changing jobs twice as often as they did even 20 years ago. And, global consulting firm McKinsey recently found, about one-third of the new jobs being created today

simply did not exist that long ago.

These questions come at a time when there is more competition in the tertiary space than ever before. Why pay for a degree, for example, when you can do the Massachusetts Institute of Technology's version of the same course through your computer for free? The first wave of massive open online courses (MOOCs) emerged in 2012 and most major universities (including the National University of Singapore) are experimenting with them. Though the threatened tsunami has failed to lay waste to universities, their financial model is being challenged as never before.

That's a good thing. No one should be able to claim a monopoly on knowledge. But this competition is happening at the same time as a more troubling trend calls into question the very notion of expertise itself.

BETTER QUESTIONS, BETTER ANSWERS

Much as lawyers grow weary of Shakespeare's suggestion that they should all be put to death, educators are regularly reminded of George Bernard Shaw's line from his *Maxims for Revolutionists*: "He who can, does. He who cannot, teaches."

Doing and teaching are different skills. Readers of this newspaper are, presumably, fluent in English. Yet teaching the English language is a specialised task for which dedicated programmes exist.

For much of human history, teaching meant the sharing of knowledge. Examinations would then test the amount of information retained and the ability to reproduce it correctly under exam conditions.

Such "closed book" examinations are increasingly rare at universities, but a significant proportion of education remains the transmission of information. Now that most of us carry a device in our pockets with access to nearly all of human knowledge, however, the notion that formal education is the only path to knowledge collapses.

Similarly, to the extent that the status of a teacher or a professor was built on having privileged

access to knowledge, that has also disappeared.

So what is it that universities – and academics – can offer that Google and Wikipedia cannot?

In the best of worlds, better questions and better answers.

Better questions in the sense that while Google is tolerably good at responding to direct factual inquiries, it is not always helpful in working out what the right question should be. The most important human advances have tended to come from individuals asking questions that no one else had thought to raise.

Better answers in the sense that Wikipedia epitomises the wisdom of the crowd. Collective opinion may be useful in areas such as quantity estimation and general world knowledge, but considerably less reliable in more specialised fields or where interested parties might edit it in their favour.

Philosophers draw a distinction here between "knowing that" and "knowing how". In law school, for example, a good part of the first year is spent dispelling any myth that learning the law is memorising a set of rules. Knowing that the law is X rarely helps a client; knowing

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how to apply X to a client's unique circumstances is much harder. In law, as in many other disciplines, the skill lies not in knowing past facts, but having the critical and analytical tools to understand and evaluate new facts or formulate new theories.

Curating a scholarly environment – running a university – means encouraging such a culture that continually asks new questions and questions old answers. It is not (yet) something that can be done through artificial intelligence and is precisely the opposite of crowdsourcing.

PROFESSOR ROBOT

So what does this mean for universities? In essence, that it will be harder to maintain good universities, but more important than ever to maintain great ones.

The massification of education through MOOCs and other online tools is already making tertiary education available to tens of millions of new students. Even if only 10 per cent actually complete such modules, that is still millions getting an education that they might otherwise have been denied.

Traditional universities will continue to experiment with MOOCs and other forms of technology-enhanced learning. Professor Ashok Goel recently held such an experiment at the Georgia Institute of Technology. He added a teaching assistant for one of his online courses, but omitted to tell students that "she" was actually an application based on IBM's Watson AI system. In five months, none of the students noticed.

Interacting with "Jill" online – who communicated via e-mail, but had to be programmed with a delay so that she would not reply to questions instantly – some thought she was a little weird, but not appreciably weirder than other academics. Prof Goel has since run the class again with a mix of AI and human assistants. At the end of the semester, students guessed which was which and did only slightly better than chance.

Jill was more of a chatbot than a replacement professor – on the

notorious website Ashley Madison, similar technology let millions of married men chat with "women" about having an affair – but she is a harbinger of things to come.

Initially, at least, such tools will increase productivity. Jill, for example, answered fairly routine questions and was an assistant in the way that GPS navigation systems assist in driving a car.

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In some ways, that is merely an update on an older technology that lets students process information at their own pace: books.

Socrates famously warned that the written word would make us lazy, for we would rely on texts rather than on our minds. It is possible that historians of the future – if such jobs still exist – will view our ambivalence about IT as similarly missing the point.

But I doubt it.

For the most interesting experiences in the classroom are not the individual acquisition of knowledge but the shared enterprise of discovery. And the most revelatory moments of research have generally come not from solitary figures working in isolation, but from communities of scholars bouncing ideas off one another, challenging one another, disagreeing with one another in a spirit of collegiality.

Indeed, the transformations highlighted at the start of this article – extensions to the duration and the quality of life – are attributable to achievements of research in universities.

That is why it is so ironic, and depressing, that the push for lifelong learning comes at a time

when there is greater scepticism about expert opinion than ever before. US President Donald Trump and the "fake news"/"post-truth" phenomenon is only one example of this.

Prior to the disastrous Brexit vote, a British Cabinet member was asked whether even one economist thought Britain's exit from the European Union would have a positive effect. "People in this country have had enough of experts," he scoffed. The anti-intellectualism of flesh and blood pundits is more of a threat to universities than the artificial intelligence of silicon ones.

LEARNING FOR LIFE

Yet academics must do more than assert their value to society. It is entirely appropriate that we should be required to prove it.

For our students, a commitment beyond a bachelor's degree is a good place to start. Announcing the NUS Lifelong Learners programme, provost Ho Teck Hua stressed that it will help graduates take advantage of the changes that globalisation and digital technologies are bringing to the workplace. As Minister for Education (Higher Education and Skills) Ong Ye Kung observed during the Committee of Supply debate, this gives new meaning to the word "alumni".

A rigorous education that encourages new questions and newer answers throughout one's life will help those alumni adapt to whatever the future holds.

A portion of that evolving educational mission will doubtless be served by technology. But just as GPS and autonomous vehicles are transforming transportation, with improvements in safety and efficiency, the most important question for graduates will remain the same one it has always been for drivers: Where do you want to go today?

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