To avoid 'permacrisis', universities must translate their knowledge

Science may be the best tool humanity has to improve our social conditions – but we must steer it in the right direction, writes Carolina Torrealba

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In 2022, *Collins Dictionary* chose "permacrisis" as its word of the year. It's easy to see how a word meaning "an extended period of instability and insecurity, especially one resulting from a series of catastrophic events", would fit with the zeitgeist of a world rocked by three years of pandemic-related disruption.
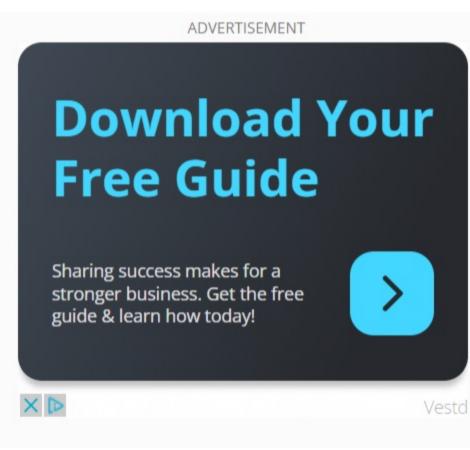
Source: Courtesy of Carolina Torrealba

But, for so many of us, this sensation of crisis arises from more than Covid-19. Global crises today take on a great number of forms, including climate change, the loss of biodiversity, pollution, technological revolution and artificial intelligence – with so much uncertainty over how such issues will shape society.

In view of these changes, those of us in the world of research must reflect on what we are doing self-critically and urgently. Now, more than ever, the advancement of knowledge and its applications is essential for socio-economic development. But what we have been doing so far in the academic world is not enough: we must scrutinise our efforts and find new ways to get our knowledge working for the good of society more immediately.

We need to further hone our approach. In particular, we must stop segmenting research into silos and instead promote a conversation between different disciplines. This is a significant challenge. For example, we need people who are being trained in artificial intelligence and data science to understand general ethics concepts and comprehend the implications of their work on social interactions. Algorithms are currently making decisions for us as the technology they underpin aims to improve our lives. We know that this carries potential risks, so how can we at universities ensure that those who build algorithms see beyond the immediate technical problems and grasp that what they are developing has a profound social impact on people's lives?

There is much work to be done to effectively translate the knowledge developed in institutions into real-world benefits. This requires constantly checking that our work, which is funded in the main by the public, becomes knowledge that serves society, shedding light on fundamental scientific questions, stimulating solutions or illuminating problems – and not just advancing academic careers.

Which areas could benefit from this approach? One example is Alzheimer's disease. It is estimated that more than 40 million people worldwide suffer from Alzheimer's or some form of dementia, and this number is increasing. Billions of dollars have been invested in Alzheimer's research, but no cure has been found. Worryingly, questions have been raised about a major paper in the field, published in 2006, that cast doubt on all the subsequent work, including pharmaceutical progress. But the incident had an upside: it has forced the scientific world to scrutinise its research processes.

It is clear that we must also engage with science- and technology-based companies that are essential to converting scientific advances into material progress. The pandemic showed us that industry can be remarkably agile and efficient in finding solutions when we need them most. Of course, companies depend on the knowledge produced by the academic world; the challenge is how to generate better conditions so that the world of university-developed research can contribute – quickly and flexibly – to the creation and development of science- and technology-based companies.

The pandemic has forced us to confront the need for impactful academic research. It has triggered us to permanently revise our scientific practices, strengthening and improving our standards. Science is a fundamental tool to achieve the 17 Sustainable Development Goals – and it is probably the best tool humanity has created to advance our societal conditions – but we must know how to steer it, with the highest standards and objectives, for it to be effective.

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