

Prof, no one is using your ideas

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The small number of people reading academic papers has become an accepted fact in Singapore and in most of the world, partly due to an opinion piece in *The Straits Times* in 2015 titled *Prof, No One Is Reading You*. The piece went viral in Singapore and the rest of the world.

A related and equally big problem is that few technologies emerge from academic papers, raising further questions about the value of these papers. For example, an analysis of the Wall Street Journal's (WSJ) Billion Dollar Start-up Club by one of the contributors of this opinion piece found that only 11 of the 143 members cited more than 10 science or engineering papers in their patents.

Instead, the content of the patents suggested that members of these start-ups were monitoring improvements in Internet speed, smartphones, and electronic components – the types of trends

that are emphasised by practitioner blogs and websites and not by academic journal articles. They are monitoring these trends because most of the new products and services offered by members of the WSJ's Billion Dollar Start-up Club are Internet-related services, such as smartphone apps and new forms of electronic commerce that have emerged through improvements in Internet speed and cost rather than through recent advances in science. This suggests that engineering professors, as well as those from other fields, should spend more time on these issues in the classroom and less time covering the concepts reported in academic papers.

Similar problems with the content of journal articles and the thinking that they create can be seen in the predictions of "breakthrough technologies" by Massachusetts Institute of Technology's (MIT) Technology Review. It has been working with MIT's scientists and engineers to predict 10 breakthrough technologies almost every year since 2001. Most were developed by MIT engineers and scientists. The problem is that only one of the 40 predicted

breakthroughs now has a market larger than US\$100 billion (S\$142 billion) and only three others have markets larger than US\$10 billion.

Contrast these relatively small markets with other technologies that emerged during the same time period that were ignored by MIT's Technology Review and by most universities because they emerged through improvements in electronic components, Internet speed and cost, and not from academic papers. Smartphones have a market of about US\$400 billion; cloud computing and Internet of Things have markets larger than US\$100 billion; tablet computers have a market larger than US\$50 billion; and social networking, e-books, wearable computing, and fintech also have markets larger than US\$10 billion.

Advocates of university research would argue that many of the above technologies have their roots in scientific advances, some of which were achieved in universities. Yes, this is true. Advances in the science of transistors, integrated circuits, magnetic storage, fibre optics, LEDs and LCDs in the 1950s, 1960s and 1970s were necessary for their

improvements as well as the further development of the Internet. But this is a separate question and we are not disputing the importance of scientific research. What we do question, however, is an emphasis on journal articles above all other university activities, particularly when the number of journal articles is growing faster than almost anything else in the world.

An important question is whether these journal articles enable professors to provide more value in the classroom. Former Harvard University president Derek Bok argues in his book *Higher Education In America* that an emphasis on research has caused an increase in course titles that reflect narrow research interests at the expense of more general issues that are much more relevant to students.

In other words, the effect of research on teaching is largely negative because it distracts attention away from skills that students need in their careers and personal lives. This problem can be seen in the earlier data. Analysis of the WSJ's Billion Dollar Start-up Club and MIT's predictions

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suggests the current research and papers of professors have little relevance to the technologies that are actually being commercialised – and by extension, the types of things that students need to learn.

The second co-author of this opinion piece has similar results from his research on natural resources management. Policymakers almost never read high-impact factor journals. Opinion pieces in influential media, including major national newspapers and broadcast media stations of reputation like the BBC, often catch the attention of policymakers. These pieces thus

have a high potential to influence public policies, certainly far more than high-impact factor journals.

Universities need to provide greater value for students, teaching the issues that they will be dealing with at the workplace and in their personal lives, both now and in the future. To do so requires universities to rethink the types of research that should be done, the real value of papers, the proper balance between research and teaching, the mix of topics to cover in classes, and what constitutes "value-added" in the classroom.

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