New Learning about Learning

Ed Byrne and Charles Clarke

The University Challenge

Changing universities in a changing world

Praise for *The University Challenge*

'As Higher Education Minister early in the new millennium (under the enlightened leadership of Charles Clarke), I was constantly being told by members of the public that we needed plumbers not graduates. It was never their kids that were going to be the plumbers incidentally. To me this phrase summarised Britain's uncomfortable relationship with its world-class university sector. In this book my old boss has (with Ed Byrne) used his passion for education and his great gift of foresight in order to provide a blueprint for how universities and governments can help to resolve the problems of our age and, in doing so, addresses the kind of nihilism that led to Michael Gove's famous contention that people had heard enough from "experts".'

The Right Honourable Alan Johnson, UK Minister for Universities 2003–04, Secretary of State for Education and Skills 2006–07

'Finally we are seeing some light and heat around the frozen notion of universities as static creatures, not responsible for the outcomes of our society or our planet, through the work of Professor Ed Byrne and Minister Charles Clarke and their new book, *The University Challenge*. Byrne, who is one of the world's leading university presidents, and Clarke, a firebrand Home Secretary from the UK, outline for all of us how to begin the mental process of freeing emerging and future universities from the ice ages. Frozen in time, universities have not adapted well, nor are they prepared for what lies ahead as a result of technological change, political and social complexity, and global changes, both climatic and geopolitical. Byrne and Clarke outline in a hard-nosed way how modern universities should evolve and how they should take on these challenges by freeing themselves from the bureaucratic structures of the past, and why and how they must begin to focus their energy on the positive outcome of society. This is a must-read for anyone thinking about universities and their responsibilities for the future.'

Michael M. Crow, President, Arizona State University

Chapter 4

Research: understanding and transforming the world

Why research matters

Ed's academic career developed in a world where universities both teach and do research. That was the worldview, which he accepted. But as he moved on in his chosen profession, he realised that many people in most universities did not both teach and research at a very high level. Some were dedicated researchers, many were dedicated educators and some were really great at both, perhaps at different points of their working life. Yet this lack of comprehensive skills in everyone was not always reflected by clear differentiation of institutional mission. He came to consider that the view that all universities should both teach and research, and that the mission of almost any university should not differ significantly from that of Oxford or Cambridge, does not reflect reality.

Different universities need to meet social and community needs that vary enormously with the geography and history of institutions, ranging from the responsibilities of small regional universities that provide local needs and support local economies to the output of a massive research university that collectively powers much of the national and international economy.

Ed began to realise that clarity of purpose, so well recognised in the business world, was a bit patchy in his own. This realisation helped him work with like-minded colleagues to clarify the mission of both great universities he has led, Monash and King's.

In this chapter, we argue that we all need great research to flourish and that a clear-headed mission and focus is necessary to achieve that. That's what this chapter is about.

Introduction

At a time when Greta Thunberg and her colleagues in the school strike for climate movement are highlighting by their action the existential debate about the future of the planet, the President of the US and a British Cabinet member decry the value of science and knowledge in our public debate. On one side of the argument are those who fear the irretrievable exhaustion of the planet as a result of the environmental and resource problems associated with growing populations, which demand ever-higher standards of living. On the other is the more optimistic group that feels, on the basis of experience over the past 50 years, that the pace of human advancement in technology and science will continue and will be able to envision, develop and implement effective solutions to these challenges.

However, whichever view you take, the challenges ahead are immense and science and knowledge need to contribute to solving them.

It should be self-evident that we need a very high quality understanding of our world if we are to master the increasingly rapid process of change through which all dimensions of our lives are passing.

Not everyone appreciates that universities are the single greatest engines of research and so can and should play a vital role in addressing these grand societal and global challenges. It is crucial not only that they perform at the highest level in addressing these challenges but that they co-operate fully with government, industry and the rest of society to address and focus on the very specific challenges that our world faces.

This truth about the future of our planet applies with equal and compelling strength to a whole range of issues. It applies to the structure of the human being, our DNA and our cells, to the nature of our universe in all its unfolding complexity, to the human, artistic and cultural achievements of our civilisations over history, to the basic rules of mathematics and law and indeed to any of the enormously varied aspects of our society and civilisation, which determine how we have lived, live now and will live in the future.

The need for us to understand the world around us is the principle argument for the place and emphasis given to research in our universities, and for governments' support for that role. Not all research, and extension of our knowledge, stems from universities, of course, but high quality university learning is at the centre of our society's efforts to maximise our capacity to understand, interpret and then act upon the knowledge that we steadily acquire.

That is manifestly the case today and has also been the case throughout much of history. It is the reason why universities began to be formed in the first place and it is why the great historic universities have the very high reputation that they do. It is why the whole world gives such high respect to institutions that recognise these achievements, such as the Nobel prizes. The importance of this aspect of university work is very widely understood and supported across populations. It is significant that almost every Nobel prize in science has been awarded to a university researcher. The rare exceptions are occasional government-funded research centres and islands of industry focus such as Bell Laboratories in the US.

That said, however, the reason for the enormous growth in the numbers of both students and of universities across the world is not simply the need to maximise our ability to extend the knowledge of the world around us.

As we have argued earlier, it is also the need for far better educated and trained populations, and in particular workforces, as the complexity of our economies increases.

And it is also the need for our economies and societies to be stimulated and enhanced by the insight and experience that universities can bring to the society and economy around them.

These varied explanations for the increased importance of universities in our societies mean that it is necessary to think carefully about how best to maximise the capacity of our university system to expand the boundaries of our knowledge as quickly and systematically as we can, and to explore the parts of our civilisations and cultures that we most need to understand.

This is difficult in any case, and raises profound philosophical and organisational questions that are not easy to resolve in the best of circumstances.

But the process has been made more difficult because university research has not historically been aligned with national and international priorities but has been driven far more by individual curiosity. Such curiosity has, of course, been an immensely powerful and welcome force – essential for many vital areas of scientific advance – but, combined with the outdated ivory tower philosophy discussed in Chapter 2, has often served to inhibit effective collaboration between universities and other key entities such as government, industry and business. This has reduced the possibility of the types of game-changing research discoveries and applications that transform our society.

Individual nations, and the wider world, can no longer afford to predicate the funding of research in universities predominantly on a 'let a thousand flowers bloom' model. We need to align all efforts to maximise our capacity to understand how our world is developing and to drive social and economic success. Research in the humanities and social sciences is more integral than ever to this objective, largely because of the fundamental importance of human behaviour. These academic disciplines should never become the poor cousin of the global research endeavour, which some fear it is becoming.

In the UK, this ambition is being promoted by the establishment of the new UK Research and Innovation (UKRI),[1] which was established in 2018. It is a new body that works in partnership to try to create the best possible environment for research and innovation to flourish. It operates across the whole of the UK and brings together the seven Research Councils, Innovate UK and Research England. It states:

> **We will be measured by the impact we deliver, and this will have three elements:**
>
> - **We will push the frontiers of human knowledge and understanding**
> - **We will deliver economic impact and social prosperity**
> - **We will create social and cultural impact by supporting our society and others to become enriched, healthier, more resilient and sustainable.**

UKRI's funding is substantial: £7 billion in 2019. This is principally attached to the REF process, which reinforces the research predominance of a small number of institutions to which we refer elsewhere in this chapter.

Confusion about the roles of universities as research engines has made it more difficult to achieve the alignment that is necessary. The widespread insistence on the crucial importance of the research-teaching nexus for students to thrive has contributed to this confusion and inadvertently diminishes the importance of the research engine.

It is not straightforward to achieve the alignment and focus upon research success that we urge. The acquisition of understanding is a very complicated process that is not at all linear in nature. It is usually necessary to explore a wide range of blind alleys and theories before reaching a reasonably accurate and truthful account of what we know. Great breakthroughs can occur from unexpected directions. Therefore, a simple value-for-money metric is certainly difficult and probably impossible to establish.

This chapter addresses four main issues:

- Where research is done: its concentration.
- The relationship between research and teaching.
- The global higher education system and international university networks.
- How useful is the research that is done?

A note on league tables

We make some reference to the national and international university 'league tables' and ratings against which universities often measure themselves. Their impact on the dynamics of global higher education has been well analysed by Hans Peter Hertig,[2] and we comment later in this chapter on some of his points.

At the global level, the three longest established, and undoubtedly most influential, are those produced by Shanghai Ranking Consultancy (the Academic Ranking of World Universities, ARWU), Times Higher Education (THE) and Quacquarelli Symonds (QS). All of these, along with other global rankings, primarily measure the research performance of universities rather than their teaching or other attributes. The ARWU is based solely on research-related criteria and was devised because of China's desire to match and replicate the successes of the West, as the Chinese Government understands their importance in nation-building.

All of these look at a subset of the world's universities, in fact the most research-intensive ones, and then use varying combinations of metrics to create a ranking. Rankings are created on a continental or geographical basis, and in particular academic or professional disciplines. These all stimulate interest and comment and sometimes offer insight.

In the UK, three ranking systems tend to predominate: The Times and Sunday Times Good University Guide, The Complete University Guide and the Guardian University Guide. However, for UK universities themselves, the REF is the most important research ranking.

These are marketed to help students choose which universities they will apply for, and they measure a wide variety of aspects of university life. In particular, they do not measure only research. They include efforts to measure teaching quality, student satisfaction and other indices. They also try to include data from all universities in the UK.