Count us in!

Quantitative skills for a new generation

On 25 June 2015, the British Academy launched its report *Count Us In: Quantitative skills for a new generation* at the House of Lords. The report can be found via www.britishacademy.ac.uk/countusin

Since the formation of its Quantitative Skills Programme in 2011, the British Academy has sought to address the growing decline in quantitative skills amongst the social sciences and humanities. This decline in such vital skills, for both undergraduate and postgraduate learning and research, has the capacity to diminish the UK's long-held standing as a global leader in research excellence, and the potential to affect economic growth too.

Count Us In offers a vision for where the UK should be in a generation's time, and how it can rise to the transformational challenge of becoming a data-literate nation. The report calls for a cultural change across all phases of education and employment, together with a concerted, continuous national effort led by government.

The British Academy believes that the ability to engage and understand data is an essential feature of life in the 21st century, and because of this it is vital that citizens, scientists and policy-makers are fluent in quantitative skills to make best use of data's opportunities.

Recommendations

To meet these ends, we make a series of recommendations that span the life cycle of schools and colleges, universities, and the work place.

In schools and colleges, we ask government to ensure that children and young adults are given a strong and confident grasp of data from an early age, so we can move away from a middle-ranking mathematics performance, to become a world leader.

Universities need to signal with more clarity the level of quantitative skills required for each course, and they should review and redesign the content of existing courses, so that our degree programmes no longer continue to be de-quantified.

Finally, in the workplace it is important for employers to support the personal growth of their employees in terms of quantitative skills through Continuing Professional Development. Seven out of 10 employees say that some form of quantitative skills are essential or important in their jobs, signalling a greater need for these skills to make full use of opportunities such as the big data revolution.

If support for these recommendations is given over the next generation, then the UK stands to win a huge economic prize. Through public sector data alone, the UK could benefit from £1.8bn per annum, which in turn could also help create 57,000 new jobs a year to 2017. Most importantly for the social sciences and humanities, further engagement with quantitative skills will ensure that we stay at the cutting edge of research by using the full spectrum of methods available to us.

Launching *Count Us In*

Count Us In was launched on 25 June 2015 at an event held at the House of Lords, hosted by Gus O'Donnell, Honorary FBA – the former Cabinet Secretary. The keynote address was given by **Professor Sir Ian Diamond FBA**, Chair of the British Academy's High Level Strategy Group for Quantitative Skills.

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"One of the major sticking points in discussions regarding the UK's capacity for quantitative skills was the need for an authoritative evidence base on the demand for, and supply of, these skills across education and employment. This led to the development of an important *State of the Nation* project, challenging us to question what was required.[1] The aim was to bring about a change in culture so deep that it would lead to 'a generation of citizens, consumers, students and workers as comfortable with numbers as they are with words'.

The British Academy's report, *Count Us In*, sets out a bold vision: that it should be perfectly normal for everyone to be able to understand and interpret data. We argue that there is a huge opportunity that exists for those who can take advantage of how data is revolutionising the way in which we see and interact with the world.

There are many benefits to building quantitative skills in our population:

- helping citizens to participate more fully in the democratic process;
- enhancing research and innovation in universities and in the workplace;
- supporting the economy, taking advantage of the 'big data' revolution, and enhancing workforce capabilities more generally.

The scope of this challenge, and indeed our vision, extends well beyond our education system.

Our findings show that unfortunately there has not been significant change since Sir Adrian Smith gave his seminal address to the Royal Statistical Society in 1996, where he recognised the many features of life that would benefit from a greater ability to reason using numbers. Nearly 20 years later, we are still lacking people capable in quantitative skills, and although some work has been done since to bridge the gap, too much of it has been uncoordinated.

The continued widening of the gap in quantitative skills has led to a number of shortfalls in education. The number of post-16 young people opting for maths courses or courses featuring maths has declined. Today, only one in six maths teachers at school level has a maths qualification. And at university level, the skills shortage has led to the de-quantifying of programmes in the social sciences and humanities, and to a certain extent in some natural sciences.

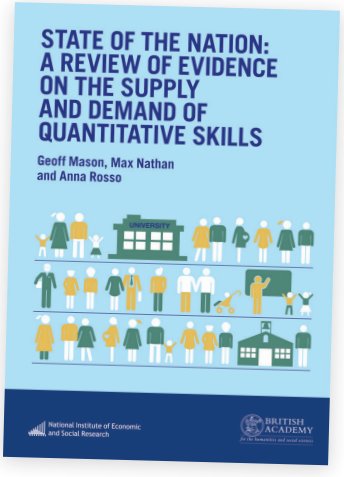
So the need to raise our game here is urgent. Change in our education system is part of the solution, but so too is cultural change. We must create a society where it is no longer 'cool' to admit 'I can't do sums', and instead we have a situation where the reverse is in fashion amongst young people and the wider population alike. To meet these ends, we have to call on those best placed to help make these critical changes, and monitor their impact and development across the sectors.

Together with my colleagues on the High Level Strategy Group for Quantitative Skills, and on the *Count Us In* Steering Group, we have developed a series of recommendations that we believe will aid the reforms needed if the UK is to be a more data-literate nation in a generation's time.

Our recommendations include:

- A major national campaign to raise aspirations around quantitative skills
- Policies co-ordinated between schools, colleges and universities to expand the proportion of the post-16 population taking maths qualifications
- An improvement of the quality of quantitative skills teaching at schools, colleges, and universities
- The transforming of curricula to be more engaging and relevant
- To build on the success of Q-Step programmes across university departments in a more systemic way, so that embedding quantitative skills in social science and humanities programmes becomes the norm
- To encourage quantitative skills-focused professional development in the workplace

The ability to understand and interpret data is an essential feature of life in the 21st century. Whichever way we look at it – the sheer potential for our economy and society on the one hand, and the nascent risks of not acting on the other – this is an agenda that demands the interests of decision makers at the highest level."



1 . Geoff Mason, Max Nathan and Anna Rosso, *State of the Nation: A review of evidence on the supply and demand of quantitative skills* (June 2015). The report may be downloaded via www.britishacademy.ac.uk/countusin

Reaction to *Count Us In* at the launch

The stand-out finding for me from the *Count Us In* report was that 75 per cent of 16- to 65- year-olds have problems doing a household budget, or working out the best buy at the supermarket.
Lord (Gus) O'Donnell

There is a real need to make the most of the available technology, and we have to make maths a more exciting and engaging subject.
Heather Savory, Director General (Data Capability), Office for National Statistics

There is a real need for more programmes like Core Maths to teach mathematics in a way that is more translatable for life after leaving education.
David Pollard, Federation for Small Businesses

Until we change the acceptability for people to say 'I don't do numbers', the challenge is going to be very difficult.
Siobhan Carey, Chief Statistician, Department for Business, Innovation and Skills

The wider use of statistics in news, policy formulation and other decision making processes means that increased fluency with numbers will benefit not just academia but will help people from all walks of life to engage better with our data-driven world.
Professor Sir John Tooke, President of the Academy of Medical Sciences

The Royal Statistical Society has been calling for greater statistical literacy for many years, and we fully support the Academy's call for action in today's report. There is a clear need for a concerted, sustained and structural effort to make the step change required for the nation to benefit from the data revolution across all areas of life, study and work.
Neil Sheldon, Vice President for Education, Royal Statistical Society

We need to get teaching methods right, and ensure teachers are comfortable with mathematics.
Kelvin Hopkins MP, Vice Chair of the All-Party Parliamentary Group on Statistics