

Overview

In April 2023, the Prime Minister [set out his vision](#) to make maths compulsory for every pupil in England up to the age of 18, arguing that the nation needed to ‘change its anti-maths mindset in order to boost growth’.

The Academy of Social Science believes that a broader perspective is required, as numeracy and data skills are already being delivered successfully through many social science (and other) subjects and in ways that apply those skills to real-world problems. Social sciences which do this include – but are not limited to – geography, economics, business studies and psychology, and all include numeracy and data components at both a school and university level. ¹

We recommend the embracing of multiple pathways towards embedding such skills, with the aim of applying these to real-world problems, and ensuring these are taught consistently. These are necessary if the UK is to have future generations who can lead fulfilled and successful lives and build a cohesive, prosperous and sustainable society.

Key points

- Recent research² indicates that it may be highly valuable for students who have chosen A-level maths (as well as those in countries where maths qualifications are compulsory) to also have the chance to apply maths in the real-world contexts provided by other subjects. The focus should instead be on expanding the use of ‘maths-in-practice’ – and, in doing so, strive to create ‘rounded’ students who are equipped for navigating their place in the world. ³
- Separately, we also need the majority of employees from non-maths backgrounds to have a good grounding in day-to-day numeracy skills. Employees, regardless of their workplace, need to be confident in working with numbers, able to interpret and manipulate spreadsheets and understand basic probability. Poor numeracy costs the UK economy an estimated £20bn every year. The UK needs a numerate population in order to build a strong economy and compete globally – especially with those countries which outstrip us in numeracy performance. ⁴
- The US and Britain currently rank 17th and 38th respectively in the Pisa international rankings for maths – but despite this, both are world-leaders in science outputs. In other words, existing teaching of maths is already producing strong outcomes. As a recent comment piece put it, “*for the minority of pupils whose careers require maths – and who keep Britain in the top leagues for Nobel prizes – the nation’s maths seems good enough*”. ⁵
- The [Q-Step Programme](#) funded by the Nuffield Foundation and ESRC demonstrated how numeracy and data skills can be embedded successfully across social science disciplines. The initiative created over 80 new quantitative social science programmes and over 230 new

¹ See, for example, Harris, R. (2023) “[Numeracy is essential to levelling up, but more maths in schools may not be the answer](#)”, Geography Directions website (accessed 18 May 2023).

² Norris, J. & Noyes, A. (2023) “[Mapping mathematical competences across subjects for advanced level qualifications in England](#)”, *The Curriculum Journal*, 00, 1– 16.

³ Harris, R. (2023) “[Numeracy is essential to levelling up, but more maths in schools may not be the answer](#)”, Geography Directions website (accessed 18 May 2023).

⁴ National Numeracy (2023) “[Why is numeracy important?](#)”, National Numeracy website (accessed 8 June 2023).

⁵ Jenkins, S. (2023) “[Sunak needn’t worry: maths mania already has our schools in a stranglehold](#)”, *The Guardian*, 17 April 2023.

quantitative modules which improved the numeracy skills of participating students. Q-Step also supported the development of work placements where students could apply these skills in the 'real world' helping employers solve live business problems. The evaluation of Q-Step⁶ showed that these experiences increased participants' employability.

Case studies

- [Longitudinal data studies](#) (such as the British Household Panel Survey, Understanding Society, or the National Child Development Study) embody social science research where numeracy and data analysis help us to gain a better understanding of human behaviour and attitudes.
- Work by the [National Centre for Social Research](#) offers cross-sectional analysis of contemporary issues, such as [the relationship between physical health and loneliness](#), or [the mental health of children and young people](#). Again, these examples see real-world social science applications of quantitative data.
- Since 2016, the [Decision Maker Panel](#) has seen social scientists conduct a monthly survey of 9,500 senior business executives about current business conditions, expected future conditions and uncertainty. The collection of this timely and reliable data met an immediate need among policy-makers and influenced decision-making in the Bank of England, 10 Downing Street, Cabinet Office, HM Treasury and Department for Business, Energy & Industrial Strategy during the COVID pandemic.
- The [World Pop](#) project uses contemporary and more traditional data on population dynamics and location to support a wide range of social and humanitarian interventions. It sees numerical and geospatial data analysis applied to real world problems as essential in its work.

Recommendations

- 1) If the UK is to make good its aspiration to improve the number and data skills of its future labour force, we need to move away from a 'zero-sum' approach of having only one pathway. Instead, we should recognise the importance of multiple routes for gaining these skills – including through the social sciences – and ensure that high-quality numeracy skills are taught consistently through those subjects.
- 2) There should be specificity and clarity in A Level curricula and undergraduate courses in social science subjects (and others through which numeracy is taught) as to the skills that are taught, including the range of quantitative and qualitative data skills. Where such skills are not included, we recommend this is addressed.
- 3) We recommend that universities continue to learn from, and build upon, the Q-Step programme which rejuvenated quantitative social science in the UK.
- 4) If 'non-mathematicians' are to choose to study mathematics (or Core Maths) a new narrative is needed about the value of maths. The domination of maths in the STEM agenda is unlikely to convince those who are choosing 'other' A Levels. Strengthening partnerships with non-maths stakeholders (such as the RGS-IBG Geography and Core Maths programme) will help provide advocacy for maths to their 'non-maths' constituencies. There should also be more positive alignment with wider agendas, such as the social sciences or SHAPE (Social sciences, humanities and arts for people and the economy), which can demonstrate the value of maths beyond STEM.
- 5) Further support is needed to achieve secure provision of Core Maths. Currently ~11,000 students study Core Maths in England. Achieving additional entries is hampered by limited availability and the on-off provision of some providers.⁷

⁶ Rosemberg, C., Allinson, R., De Scalzi, M., Krčál, A. & Farla, K. (2022) [Evaluation of the Q-Step programme](#), UK: Technopolis / Nuffield Foundation / ESRC.

⁷ Hillman, J. (2020) "[Further engagement from all quarters required for Core Maths to fulfil its potential and boost participation in post-16 maths](#)", Nuffield Foundation website (accessed 18 May 2023).