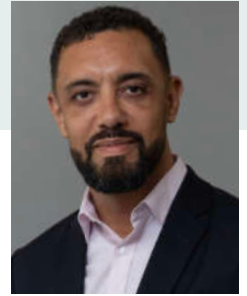


Schools are essential but overlooked in UK research and innovation

Research and innovation policy often focuses on universities, labs, funding and the current workforce. Yet almost every researcher starts out in a classroom. What young people experience there influences how they understand scientific research and their place within it. Authentic, student-led research offers a way to connect education with the wider research and innovation system.



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A country's research and innovation (R&I) capacity is built over many years. By the time a young person chooses a university course or enters a laboratory, many of the factors shaping their relationship to research have already been established. Schools and colleges have a role that extends beyond delivering the STEM curriculum: they help shape young people's understanding of what research and innovation is, who does it and whether they see themselves taking part.

The UK's talent pipeline

Successive governments have shared the ambition for the UK to be a global leader in scientific research and innovation. The Covid-19 pandemic, the transition to a low-carbon economy and the rapid development of AI have only reinforced this. In 2025, the government announced £86 billion in public research and development investment to 2029–30. The creation of the Department for Business, Innovation, Science and Trade has further embedded R&I within the government's economic agenda.

But where will the people who deliver these ambitions come from? Tomorrow's researchers, innovators, scientists, engineers and technicians are in today's classrooms. Many students encounter science mainly as established knowledge to learn for exams, rather than as a process of asking questions, investigating problems, interpreting evidence and developing ideas. They have limited opportunities to practise the technical and transferable skills involved in research and innovation, or even to see themselves as people who could take part.

The PISA 2025 results show strong attainment in science among young people in the UK. Yet only 70% of UK students reported feeling that they belong at school, below average for the OECD (Organisation for Economic Co-operation and Development). The tests also found a significant gender gap in science performance in the UK, with boys outperforming girls, while there was little difference across the OECD as a whole. These findings sit alongside the persistent gender imbalance in the UK's STEM workforce, where women make up only around a quarter of employees.

Strong attainment does not necessarily mean that young people are experiencing school in ways that foster belonging, engagement or a sense of what science can offer them. The latest Public Attitudes to Science survey results, published in January, found that 16–24-year-olds were among the most informed about science, but also the most ambivalent about its role in society. Notably, 32% of respondents in this age bracket agreed that school had put them off science, compared with 23% of adults overall.

Educational success does not automatically translate into engagement with the practice, possibilities and careers of research and innovation. As the Milburn Review interim report found, the UK faces a wider challenge in helping young people move successfully from education into work, while employers report shortages of engineers, technicians and people with strong transferable skills. The question is not simply whether enough young people study STEM,

but whether education gives them the knowledge, skills and experience to pursue research and innovation pathways.

If the UK is serious about its ambitions, it must ask not only how much it invests in R&I, but whether education is enabling young people to take part in that future. Schools and colleges should be recognised and supported as part of the country's R&I infrastructure: as places where future talent, capability and capacity are developed.

Bringing R&I into the classroom

What if young people experienced science not simply as knowledge, but as something they could do? This is the premise behind the Institute for Research in Schools (IRIS), a national charity delivering student-led research projects in schools across the UK. For a decade, we have worked with over 10,000 young people, supporting them to ask genuine questions, investigate them scientifically and communicate what they discover. Our mission is to change the culture in UK education so that every young person experiences real research.

Student-led research lets young people experience the research process from beginning to end. Rather than following instructions to reproduce a known result, they formulate questions, develop methods, collect and analyse evidence, interpret findings and consider what should happen next. Research builds on curriculum knowledge while changing how students use it: they apply what they know to unfamiliar problems,



Dr Jo Foster puts a question to the audience during one of IRIS' annual student conferences

developing scientific skills alongside creativity, communication, collaboration and the confidence to work with uncertainty – qualities central to research and innovation in the wider world.

Projects can take young people's interests far beyond the classroom. One student combined mountain climbing with artificial intelligence to explore whether AI could identify people needing rescue in snow. The project brought together a personal interest, an emerging technology and a real-world search-and-rescue challenge.

Other projects tackle challenges affecting students' communities. At a school in Northern Ireland, students investigated ways to reduce phosphate pollution in Lough Neagh, testing whether hydroponically grown garlic could absorb phosphate from polluted water. They designed the experiment, created conditions to replicate the lough, measured phosphate levels and observed promising reductions. Following the project's success in 2024–2025, the school linked with Queen's University Belfast, whose researchers were supporting further student-led investigations.

These projects show what success can look like when young people are given the opportunity to participate in real science. Ten years of evaluation suggest benefits beyond STEM knowledge. Across our programmes, 85% of students reported improved knowledge of STEM careers, 76% greater interest in STEM careers and 90% increased self-belief. Around three-quarters said they are more likely to identify with researchers or people working in STEM.

IRIS is part of a growing national movement of organisations bringing authentic research into schools, with young people collecting and analysing real data and working with universities and research institutions. Together, this work points towards a different relationship between schools and the research and innovation system: schools become places where young people participate in science, not simply prepare for it.

Authentic research gives students experience of being scientists: asking questions, dealing with uncertainty, working with evidence and creating knowledge. The policy challenge is to make these opportunities available to more young people, rather than leaving it to only the schools and students who have access today.

Recognise schools as part of the solution

To realise the UK's research and innovation ambitions, schools and colleges must be treated as an essential part of the infrastructure that underpins them. That means more than supporting good programmes or relying on committed individual schools. It requires national leadership and alignment to ensure that every young person has the opportunity to experience what research and innovation actually involve.

Authentic, student-led research can provide that experience. It can improve knowledge and attainment, develop skills for study and work, strengthen confidence and belonging, and connect education, careers and communities. Yet opportunities to participate in research still reach only a fraction of students.

At IRIS, we believe three changes are needed to make this a reality for all young people:

1. **Student-led research should be recognised as a valuable part of STEM education.** Authentic research and innovation experiences should be embedded in the curriculum, with science capital and belonging considered alongside attainment.
2. **Every young person should have these opportunities.** Access to authentic research experiences should not depend on where a young person lives, which school they attend or whether their family has connections to science.
3. **Education and R&I policy need to be closely aligned.** Schools and colleges are foundations of the UK's R&I ecosystem, but they cannot transform the system alone, nor should they be expected to. That requires political leadership to align education policy more strategically with universities, research institutions and employers, creating clearer connections between what happens in schools and the pathways into higher education, research and employment.

The science policy community has an important role to play, by valuing schools as places where young people can and do already participate in research and innovation. IRIS is ready to help make that change. The UK's next generation of researchers and innovators is already sitting in our classrooms. The question is how we support them to take part in the future we are investing so heavily to create.