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CaSE respond to inquiry into practical experiments in schools

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This is CaSE's consultation response to the House of Common Science and Technology Committee inquiry into practical experiments in school science lessons and science field trips.

Science and engineering are critical to the UK's social and economic future. Demographic trends in Europe and further afield mean that this country must strengthen its medium- and high-skills sectors in

order to be competitive.

Despite this imperative, the UK still struggles to train enough young people with science and maths skills. The CBI reported in May 2011 that 43% of employers struggle to recruit enough staff with STEM (science, technology, engineering and maths) skills. A lack of practical experience and lab skills was the fifth most commonly cited reason for this difficulty[1].

Further, our PISA (programme for international student assessment) scores in science and maths compare poorly with our competitor nations, such as Germany, Finland, and Japan[2].

Consequently, it is essential that the Government places a greater emphasis on improving practical skills in schools in order to support the economic recovery, but also to support a rebalancing of the economy towards STEM sectors and away from an over-reliance on the financial services sector.

CaSE therefore supports the evidence given to the Committee by the Standing Committee Representing Education (SCORE), and we would make the following additional points.

Training and subject-specific continuing professional development (CPD) for teachers is crucial for improving the quality of teaching in schools. CPD was one of the areas covered by CaSE's analysis of the Education White Paper, sent to the Secretary of State for Education on 10th February[3]. CaSE received no adequate response to this analysis, and is concerned that the department is ignoring the science and engineering community's concerns[4].

A further issue is that although practical and lab-based skills need to be improved generally, the problem is even more acute in inner-city and state schools. Figures show that independent school pupils tend to be over-represented in A-level entries for STEM subjects[5]. Moreover, opportunities for fieldwork are skewed to the independent sector, the decline in A-level Biology fieldwork has been more marked in state schools, and that there are few planned opportunities for science fieldwork at Key Stages 3 and 4 in inner-city schools[6]. The Government should place a special emphasis on combating this unfairness.

We also highlight the particular issues faced in computer science and IT. Practical skills in these subjects are essential for navigating the modern world, while an advanced understanding of such skills is critical for the UK's growing technology-based economy. Despite this, the BCS (Chartered Institute for IT) note that computing teaching in the UK is "on the verge of collapse"[7]. Further, Ofsted note that much teaching focuses on teaching students how to use specific items of software, rather than an understanding of what computer science is[8]. A practical understanding of computer science should form a more central part of the pupil experience in schools.

Declaration of Interests

The BCS (Chartered Institute for IT), and three of SCORE's five members (the Society of Biology, the Royal Society of Chemistry, and the Institute of Physics), are organisational members of CaSE.

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[1]*Building for Growth: business priorities for education and skills*, CBI, May 2011

[2] *Science, Engineering & the Devolved Nations*, CaSE, April 2011

[3] *Letter to Michael Gove – Education*, CaSE (published online), February 2011.

[4] *Businesses concerned by school leavers' skills*, the Financial Times, May 2011

[5] *Full A-level results briefing,* JCQ, 2010.

[6] *Outdoor Science*, the Association for Science Education 'Outdoor Science Working Group', 2011

[7] *The Collapse of Computing Education in English Schools*, CaSE Blog, 2011

[8] *The Importance of ICT*, Ofsted, 2009