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THE ROYAL SOCIETY

Royal Society response to BIS consultations on the *Skills Required for Sustainable Growth* and *A Simplified Further Education and Skills Funding System and Methodology*

Principles for a skills strategy

The Royal Society believes there is a principle missing from the skills strategy. Support for training in strategically important and vulnerable subjects (SIVS) should be embedded in the wider skills agenda. HEFCE's current strategy for SIVS in higher education recognises the importance of protecting funding for subjects that are valuable for a strong knowledge economy. Science and technology subjects are identified in the recent Browne Report as priority areas and given the important role they are likely to play in our future economy, the Royal Society believes they should also be seen as strategically important to the wider skills agenda. The motivation for investment in lower-skills, as set out in the consultation, is right. But these arguments should be balanced by evidence that investment in science is key to sustainable economic growth.

A respected and credible training offer

While the Royal Society has no evidence on the progression from Level 3 Apprenticeships into higher education, we are looking at the transition from UK science and mathematics A-levels and equivalents to STEM Higher Education. Our fourth 'state of the nation' report to be published in early 2011 may have implications for all vocational routes including Higher Apprenticeships at Levels 4 and 5 (see below for more details on the project). We are also conducting a study into the set of content and skills required to be taught in schools for progress to computing and IT Higher Education and employment.[1] The Royal Academy of Engineering has an interest in both projects as they also relate to the skills required for the engineering professions. Assuming that the DfE's independent review of vocational qualifications will need additional input from a BIS perspective, we would be happy to assist in any way both departments see fit.

Helping individuals and employers choose the learning they want

The consultation asks how the learning market can be made to work more efficiently, effectively and economically and be more responsive and accountable to demand by individuals and employers, while also delivering value for money. Of key importance to the Royal Society is the provision of high quality, impartial information, advice and guidance to learners about science and mathematics qualifications, pathways and progression routes. The recent SCORE report *Choosing the right STEM degree course: investigating the information available for prospective applicants* is a step in the right direction, having revealed inefficiencies within the university entry system for the sciences.[2] It is expected that the Society's fourth 'state of the nation' report will further contribute on A-level and equivalent science and mathematics subject combinations that provide the 'pool of talent' that goes on to study STEM HE courses. It is likely that some of the points made in this report will relate to the future market for qualifications and the economic factors that are associated with studying STEM subjects.

Focusing on the role of employers, increasing the interaction between employers and the institutions that provide STEM-training would allow employers not just to understand the generic

[1] See for more background to the projects: http://royalsociety.org/Education-Policy/Projects/

[2] *Choosing the right STEM degree course: Investigating the information available for prospective applicants* , SCORE, 2010.

and specific skills gained from STEM-training, but also start to shape these skills. Successful schemes in this area encourage substantive collaboration between industry and education institutes, building skills programmes that are benefit both partners. These include industry fellowships, innovation and alternative careers workshops, and sandwich courses for undergraduates.

Giving colleges and training organisations the freedom to respond

The Royal Society welcomes any reduced focus on high stakes, tick box targets as well as any intention to simplify the development, choice and delivery of qualifications. In the former case this links to the previous Government's over-emphasis on accountability measures which worked against the achievement of real learning. In the latter case this will require the co-operation of Ofsted, Ofqual, the Awarding Bodies and the Sector Skills Councils, all organisations which require a review of their key purposes and effectiveness in maintaining and improving the standard of science and mathematics education in England.

Measuring success

The Royal Society believes that defining, collecting, collating and analysing evidence are all key tasks within a properly scientific system of measurement of outcomes, as long as these are undertaken in a clear and purposeful way and not just to produce more data for data's sake. Our 'state of the nation' reports which over the last 3 years have examined the available data on 5-19 science and mathematics education in the UK have raised a number of concerns about the Government's approach to this. We would prefer an approach that collected, clearly-defined information on the following indicators, not in order of priority: workforce quantity and quality; learner attainment and progression; qualifications requirements, entries and combinations; institution type; gender; socioeconomic status; environmental factors e.g. ethnic background, personal and peer attitudes; and geographical location.

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