



Education Bill

A SCORE response to the House of Commons Public Bill Committee's Call for Evidence

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About SCORE

SCORE is a partnership of organisations, which aims to improve science education in UK schools and colleges by supporting the development and implementation of effective education policy. The partnership is currently chaired by Professor Graham Hutchings FRS and comprises the Association for Science Education, Institute of Physics, Royal Society, Royal Society of Chemistry, and Society of Biology.

SCORE welcomes the opportunity to provide evidence on the Education Bill for the House of Commons Public Bill Committee.

In summary the SCORE partners' response covers:

- Recruitment and retention of specialist teachers in the sciences
- Initial Teacher Education
- Curriculum, qualifications and assessment
- Schools and accountability

1. Recruitment and retention of teachers in the sciences

1. The Education Bill emphasises the importance of subject specialism, but SCORE partners are concerned that there is lack of clarity over what is meant by the term 'specialist'. A clear universally approved definition of 'specialist' is needed to monitor science teacher workforce numbers across 5-19 and to ensure that established targets for recruitment of science subject specialists are met. SCORE partners have developed a definition of what is meant by a specialist teacher in the sciences and will shortly be writing to the Secretary of State for Education on this matter.
2. We welcome the aspiration to raise the status of the teaching profession. However, there is more to achieving this goal than simply raising the bar for entry; other facets include: improving working conditions, facilitating/giving as an entitlement access to subject-specific Continued Professional Development (CPD), increasing the trust, autonomy & influence given to teachers and acknowledging their value to society. What is needed is an effective selection process that looks at more than just the single measure of degree class.
3. SCORE would like to see specialist teachers holding a relevant 3rd class degree in their specialist subject to be considered alongside higher classified graduates. Good teaching of the sciences is closely linked with an aptitude and enthusiasm for the subject at school level. A chemistry graduate, for example, is likely to have enjoyed the subject to have chosen a chemistry (or suitably related) higher education course and will have been immersed in the subject for at least three years.
4. There are particular concerns for shortage subjects. Had the 2:2 cut-off been in place in 2010, there would have been about 100 fewer trainees in physics (which was already

short of the TDA's internal target by 300). In the short term, we recommend that exceptions are made for shortage subjects like chemistry and physics.

5. SCORE welcomes the Government's intention to provide support to increase the number of specialist teachers in physics and chemistry and to improve the skills of existing teachers. SCORE recommends the following considerations are taken into account:
 - A. Despite the emphasis to increase the number of specialist teachers in physics and chemistry, the overall allocation of ITE places for 2011/12 has reduced by 22% from 2008/09.
 - B. SCORE welcomes recognition that the science subjects should be taught by a subject specialist. To support this in the short term, and in the long term, SCORE recommends there are separate allocations for physics, chemistry **AND** biology ITE courses. Currently, the biology allocation is grouped with general sciences: this must change.
 - C. To maximise their impact, specialist subject teachers must be deployed appropriately in schools. This is also likely to positively impact on the recruitment and retention of specialist teachers. About 23% of physics graduates, who go into teaching, train as maths teachers – some of whom chose not to train for physics because they did not want to teach biology and chemistry. This perception about having to teach outside a teacher's specialism needs to be addressed at the recruitment stage and through ITE courses. Guidelines should also be provided to senior school leaders on appropriate deployment.
 - D. Half of new teachers leave the profession within five years. To increase the number of specialist subject teachers this needs to be reduced. We would like to see an increased commitment to investigating the reasons behind this leakage and to tackling them.
 - E. Care must be taken on the unintended consequences of incentives to attract the best graduate into teaching. For example there is a risk that teachers in shortage subjects will become more expensive to employ and therefore less attractive to a head teacher.
6. SCORE seeks clarity on the role of the School Workforce Census, including details on the data collected and its role in the future. Government should collect data year-on-year to provide a detailed and accurate snapshot of the specialist status of new entrants into teaching, teachers in-service and of those choosing to leave or return.
7. Continued Professional Development (CPD) is an important strand of teacher training. It ensures and improves the quality of the workforce; it helps with retention and it provides opportunities for teachers to develop within the profession. However, existing arrangements militate against teachers easily accessing CPD during school time, make it hard to develop a strategic plan for CPD, and incentivise senior leaders to address whole-school issues (finance and performance on league tables) rather than develop

the classroom skills (subject knowledge and understanding and pedagogical content knowledge) of their teachers.

8. There is a real need for subject-based CPD as part of the overall CPD for teachers of the sciences. For specialist subject teachers it provides them with the opportunity to grow and develop in their specialism and remain engaged with their subject. But also for non-specialist teachers subject specific CPD helps to address the basic gaps or misconceptions in their subject knowledge and pedagogical content knowledge. The Stimulating Physics Network, Science Additional Specialism Programme and Chemistry for Non-Specialists programme aim to tackle this specifically.

2. Initial Teacher Education

9. While SCORE recognises the opportunities of school based routes into teaching, SCORE strongly recommends that the Government continues to support university based teacher training for the reasons set out below:
 - A. SCORE is unconvinced how the experience of being trained in a training school would necessarily be better than a PGCE. Those taking PGCEs already spend two thirds of their course in schools. They have the added benefit of spending time in a university department with the support of a dedicated trainer. As long as they get proper mentoring support in the school, this offers all the advantages of the proposed training schools with the additional benefit of having the support of a subject trainer, being connected with research and a network of colleagues learning to teach the same subject.
 - B. A course based in a university department gives trainees experience of more than one school and it gives them the opportunities to share experiences with their trainer and peers.
10. SCORE appreciates school- centred ITE works very well on a small scale, where schools have the support mechanisms and suitable mentors in place. However, the Education Bill is not clear on how such a programme can be expanded effectively. SCORE calls for the following points to be considered:
 - A. Clarity on how the teaching schools will be identified. An excellent school may not necessarily have an excellence in teaching the sciences; equally an excellent teacher in one of the sciences may not make an excellent (or even good) trainer.
 - B. There is a risk that excellent schools are identified as being suitable for becoming training schools and, as a consequence, the teaching and learning suffers because lessons are shifted to inexperienced (trainee) teachers and the time of their experienced teachers is given over to training rather than teaching.
11. SCORE partners welcome the reference to a centralised application system in the Education Bill. The partners would like to see a consultation on something similar for

all entries to teacher training. There is some evidence that some applicants are lost from the profession because of the current sequential application system.

12. Funding for teacher training should be structured so as to encourage the recruitment and retention of excellent trainers. The current requirement on ITE providers to do original research means that potentially excellent trainers can be put off applying for a job in ITE (because of the need to do research).

3. Curriculum, qualifications and assessment

13. We welcome the National Curriculum Review and the commitment to use evidence to develop the new National Curriculum. The SCORE partnership intends to submit a response to the Call for Evidence.
14. SCORE remains concerned on the timings involved in the National Curriculum Review. SCORE would like to see enough time allocated for the development phase so that the new curriculum is fit for purpose on its first publication.
15. Echoing the introductory comments on the Education Bill, an education system, including the National Curriculum, can be no better than its teachers. SCORE therefore recommends there is adequate support through CPD for teachers in the implementation stage of the National Curriculum.
16. SCORE partners see no logical reason why a National Curriculum, which is good enough to be required in all maintained schools, should not be a requirement for Academies and Free Schools. SCORE also seeks clarity on how much curriculum freedom will be given to Academies and Free Schools and who will monitor what is taught in them.
17. SCORE has responded separately to the Education Select Committee's Inquiry on the unintended consequences of the newly introduced English Baccalaureate. In summary SCORE is concerned the English Baccalaureate is trying to serve dual purposes (school accountability and pupils' attainment) and runs the risk of raising the stakes of some examinations, which in the past has led to narrowing of curricula in schools and pupils being entered for inappropriate examinations.
18. SCORE supports the Government's intention to lessen the extent to which GCSEs are modularised. The burden of examination has become too great on pupils and has brought about a culture of teaching to assessments. In addition modules have increased the cost of exams to schools – as they enter more exams at more sittings. Modules also determine the sequence in which ideas are taught; and this sequence has not always been logical in the teaching of physics, chemistry and biology.
19. SCORE partners would also like to see a consultation on the use of coursework in the sciences for assessing some aspects of practical work and ideas about science.
20. SCORE welcomes the focus the Education Bill has placed on vocational education at 14-19 and looks forward to the Government's response to the Review carried out by Alison Wolf.

4. Schools and accountability

21. The proposed funding cut to school sixth forms, which have been introduced to bring school funding in line with FE funding, is likely to have a devastating effect on the subjects and combinations available at sixth form.
22. SCORE is equally concerned that the funding cuts will have an adverse affect on costly practical subjects, like the sciences.
23. If the Government is to maintain its commitment to STEM subjects and to increase the number of young people progressing in STEM education, it must be prepared to appropriately resource science education, through ensuring access to specialist teachers, to a range of science A-levels and to practical work.
24. SCORE is concerned that the additional autonomy being given to schools, particularly Academies and Free Schools, may increase the focus of those schools on their own immediate needs (healthy finances and league table success) rather than addressing national priorities or the needs of individual pupils.
25. It is the case that schools should be accountable. Recently this accountability has been achieved using metrics based on the performance of students in exams. Hence exams have taken on the dual role of assessing pupils and holding a school to account.
26. SCORE would like to see a consultation on developing a school accountability system with aims that benefit all pupils and serve the needs of the country. It should encourage schools to give pupils access to a rich, diverse, high quality provision and to match pupils to the best route for them, to maximise their potential and to prepare them for further study or for work.