
Department for Education: Secondary School Accountability Consultation

Response by the Wellcome Trust

April 2013

KEY POINTS

- Our response is principally concerned with the effect of accountability measures on the teaching of science.
- The proposed headline accountability measures do not reflect the status of science as a core subject in the National Curriculum, alongside English and mathematics. The proposals should be redrafted to specify two science GCSEs in both the Threshold measure and the Average Point Score measure.
- The two science qualifications referred to above should be selected to ensure that all of the core sciences of physics, chemistry and biology are taught up until the age of Key Stage 4.
- Accountability measures that relate solely to formal qualifications can drive 'teaching to the test', and we believe that a healthier situation would involve widening the range of accountability measures beyond what is proposed in this consultation.
- We propose four additional measures to be phased in over time: specialist teacher qualifications, proportion of students who choose each subject at A level, students' destinations in Higher and Further Education, and the proportion of students in employment after formal education.
- Some aspects of schools' performance cannot easily be measured but are nevertheless important. School inspection is necessary as part of forming an overall view, but Ofsted should rely less on data and more on the professional judgement of its inspectors.

INTRODUCTION

1. The Wellcome Trust is a global charitable foundation dedicated to achieving extraordinary improvements in human and animal health. As the UK's largest charity and the world's second largest medical research charity we are committed to supporting science education, believing that the future of science depends on the quality of science education today. We founded, and continue to fund, the National Science Learning Centre, in partnership with Government and science-based industries. We are interested in policy making that ensures a high quality science education is available to all young people, not just the fortunate few.
2. We believe that it is impossible to achieve a good education in science, or indeed in any subject, without good governance and accountability systems for schools. We have embarked on a programme of work to help improve school governance – details can be found on our website¹. As a leading advocate of the use of open data, the Trust is

¹ Wellcome Trust Education and Learning web page on accountability and school governance <http://www.wellcome.ac.uk/Education-resources/Education-and-learning/Our-work/Education-Policy-Work/WTS056758.htm>

particularly interested in the way that information and data at an appropriate level of detail can help governors do their job of holding the headteacher to account.

3. Our interest in secondary school accountability systems is closely related to our interest in school governance. Like the Department for Education, we believe that the assessment and accountability system needs to be the servant, not the master, of excellent teaching, and we are concerned that the current accountability system has too many perverse incentives and can distort teaching and narrow the curriculum, with particular impact on science.
4. We accept that test and examination results are an important part of holding schools to account. They are necessary, but they are not sufficient. Parents should be able to take good exam results for granted, but they want more: they want their child to be secure at school, inspired by their teachers and to be employable when they complete their education.
5. We have structured this response in three parts, addressing the questions that are particularly relevant to science.
 - A Our response to the Government's proposed headline measures (Question 1 in the consultation document).
 - B Our views about wider accountability measures (Questions 4, 6 and 8).
 - C In the final section we make a number of general observations.

A RESPONSE TO THE GOVERNMENT'S PROPOSED HEADLINE MEASURES

6. **We are concerned that the proposed headline measures do not reflect the position of science as a core subject in the National Curriculum.**
7. We are confident that the Government acknowledges the essential role of the sciences, alongside mathematics and English, as underpinning the employability of all young people and securing the economic prosperity of the country.
8. The central role of science is reflected in its position as a core subject, alongside mathematics and English, within the National Curriculum legislation². However, the accountability proposals as currently drafted only give mathematics and English the heightened status of core subjects. We believe that the proposals should be redrafted as follows so that the core status of science is reflecting in accountability measures as it is in the National Curriculum.

² See paragraphs 1.8 and 2.3 of the National Curriculum consultation document.

The Threshold measure should include two science GCSEs* as well as English and mathematics GCSEs.

The Average Point Score measure should specify two science qualifications* alongside English and mathematics, so the measure would include:
English, mathematics, two sciences ; any combination of two other current EBacc subjects; and two other high value qualifications.*

* See paragraph 10 below.

9. As we have argued in our response to the National Curriculum consultation³ it is difficult to progress in any one science without having studied all three, and for reasons of equity it is essential that all students in secondary schools study all three major sciences to age 16.
10. Therefore, the two science qualifications referred to above in both the Threshold and Average Point Score measures would be selected to give a balance across the major sciences of physics, chemistry and biology. This could be achieved through studying two combined science GCSEs or through studying three separate science GCSEs, two of which could be included in the Threshold measure, and two or three in the Average Point Score measure.
11. The changes proposed above would reflect the position of science as a core subject, and act to improve the life chances of all students, especially those from families that do not always appreciate the critical importance of science to future careers.

B OUR VIEWS ABOUT WIDER ACCOUNTABILITY MEASURES

12. Accountability measures that relate solely to formal qualifications can drive ‘teaching to the test’, with bad consequences for science and other subjects. In science a particular casualty is practical experimental work: it either gets left out, as teachers focus on examination revision, or narrowed onto a small set of experiments designed to optimise students’ performance in practical assessments. This is not the kind of practical work that inspires students and arouses their curiosity, nor does it develop the broad range of practical skills⁴ that employers and universities are looking for.
13. We believe that a healthier situation would involve widening the range of accountability measures beyond what is proposed in this consultation. It is interesting to look at the situation with university performance tables⁵, where there is a wide range of data available to help students make their choice, including student satisfaction, student to staff ratios and graduate employment rates.

³ Wellcome Trust (2013) Reform of the National Curriculum in England
www.wellcome.ac.uk/stellent/groups/corporatesite/@policy_communications/documents/web_document/wtp052330.pdf

⁴ Gatsby's Practical Work in School Science programme
<http://www.gatsby.org.uk/en/Education/Projects/Review-of-Practical-Science-in-Schools.aspx>

⁵ For example the range of ratings available on the Complete University Guide website
www.thecompleteuniversityguide.co.uk/league-tables/

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14. We think that in the longer term, there should be broad data sets like these to enable parents and governors to evaluate different schools and help to drive their improvement. This would be closer to the system used in the Netherlands, where the headteachers of secondary schools have agreed a 'Framework for Responsibility'⁶ which includes about 20 indicators giving a broad picture of the school, including students' and parents' satisfaction, destination measures and staff student ratios as well as examination results. Some of these indicators come from national data, and some from the school's own data. We believe the proposed Data Warehouse for English schools should allow for both kinds of data to be available.
15. It will take time to move to such an arrangement, but meanwhile, in the shorter term it would be possible to begin by introducing a limited number of additional measures. Parents want their children to be inspired by their teachers and to leave education ready for employment. We believe data that is already available could be used to provide robust accountability measures that would encourage schools in these directions. We therefore propose four further accountability measures which would help governors and parents to assess more roundly the performance of their schools.

Proposed additional measures:

- 1 **Specialist teacher qualifications**, showing the proportion of students who are taught by a teacher qualified in that subject – for example the proportion taught physics by a teacher with a recognised physics qualification.
- 2 **Proportion of students who choose each subject at A level** (and other Level 3 qualifications). This would be a measure of the popularity of subjects and would incentivise subject leaders to encourage teaching that inspires to further study as well as passing exams.
- 3 **Destinations**, showing
 - a. progression of students from 11-16 schools to further education, training or employment, and later onto higher education, training or employment at age 18
 - b. progression of students leaving schools or colleges at age 18 into higher education, training, or employment.This would incentivise schools to make their students aim high and ensure that they develop employability skills as well as qualifications.

16. Such data are either already available (for example from the workforce survey⁷ and the destinations survey⁸) or could be readily made available from existing datasets. However, we appreciate that putting these measures in place would take time, and we accept that the new measures would have to be phased in, beginning perhaps with the destination measure, which is already on the stocks.

⁶ *Vensters voorverantwoording* from the VO-raad
www.venstersvoorverantwoording.nl/nl-NL/pages/46/Aan-de-slag.aspx

⁷ School workforce survey in England
www.education.gov.uk/researchandstatistics/statistics/statistics-by-topic/teachersandschoolworkforce/a00205723/school-workforce-in-england-provisional-nov-2011

⁸ Destinations of key stage 4 and key stage 5 pupils
www.education.gov.uk/researchandstatistics/statistics/statistics-by-topic/highereducationfinance/a00210491/destinations-ks-4-5-pupils

17. The addition of these further measures would incentivise schools to teach science more inspiringly and beyond the needs of examinations. But there are other measures that indicate how well schools are doing in science. Although the following suggestions are for science, the approach could be readily adapted for other subjects.

- a. Gender balance across the sciences – this is particularly an issue for girls and physics⁹.
- b. Quantity and quality of laboratories and science equipment.
- c. Number of laboratory technicians, and their qualifications.
- d. Availability of science clubs and other extra-curricular science activities.
- e. Use of STEM Ambassadors and other science outreach schemes.
- f. Availability of work experience in STEM occupations.
- g. Opportunities to do open-ended experimental project in science.
- h. Quality of careers advice and guidance, particularly relating to STEM careers.

18. We appreciate that not all of these lend themselves to robust measures, but the Trust is interested in exploring further the idea of a basket of indicators that would enable parents and governors to assess the quality of science in a school.

C FINAL OBSERVATIONS

19. Whatever measures are adopted for secondary schools at the end of Key Stage 4, it is important that they are coherent with the measures adopted for the phase beyond 16, which is much more diverse and includes a wide range of technical qualifications as well as academic ones.

20. The consultation, and this response, has focussed on quantitative data. However, as Einstein observed, 'Not everything that counts can be counted, and not everything that can be counted counts'. There are aspects of school performance, such as students' self-confidence, resilience and general well-being, that can be judged, but are not easily measured. This is why external inspection continues to be important as a way of getting an overall view of the school's performance.

21. However, we are concerned that the external inspector, Ofsted, is itself driven by data, and bases its judgements more on data about exam performance than on direct observation. Ofsted should rely less on data and more on the professional judgement of its inspectors. The best outcome for schools would be to have a wider range of quantitative indicators, as we have begun to describe here, tempered and augmented by judgements about the overall quality of the school, based on direct observation by experienced professionals.

⁹ Institute of Physics (2012) It's Different for Girls
www.iop.org/education/teacher/support/girls_physics/page_41593.html