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SBS 03/19

A broad and meaningful curriculum

SBS response to the Working Party on education between the ages of 14 and 19.

1. Save British Science is pleased to submit this response to the Working Party on education between the ages of 14 and 19. SBS is a voluntary organisation campaigning for the health of science and technology throughout UK society, and is supported by 1,500 individual members, and some 70 institutional members, including universities, learned societies, venture capitalists, financiers, industrial companies and publishers.

General Remarks

A Broader Curriculum

2. SBS supports moves to reform the system of education between the ages of 14 and 19, having long advocated a replacement of the A-level system with a broader curriculum. For too long, Governments and the educational establishment have pandered to the trite view, repeatedly trotted out by the media, that A-levels represent a “gold standard”.¹ The people who continue to assert this do not appear to have recognized the vast changes that have occurred in the educational landscape over the past 20 years (or indeed to have a sufficient grounding in history to know that the “gold standard” eventually proved disastrous for the UK).

Teacher shortage

3. However, while we are happy to comment on the changes proposed in the current consultation document, we must reiterate that the main problem for science education at secondary level remains the shortage of well-qualified teachers.

4. Only 52% of secondary school science teachers have “a lot of confidence” in their ability to teach modern biology. Two-thirds of people teaching GCSE physics do not have a physics degree; one third do not even have a relevant A-level or equivalent.² 40% of all unfilled teaching posts in England and Wales are in science, mathematics or

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technology.³ 34% of people training to be chemistry teachers do not have at least a second class degree in their subject.⁴

5. As a nation, we could develop any curriculum we chose, and make it the envy of the world, but unless the problem teacher shortages is solved, it will not make the kind of substantial difference in science education that the UK needs if its economy is to thrive in the coming decades.

The consultation document

6. SBS recognizes that the issues at stake are complex, and challenge half a century of educational practice, so we acknowledge that any consultation document on this subject is bound to be far from perfect. However, we find that document falls far short of the kind of well-argued case that would form the basis for a really meaningful discussion. It contain contradictions (sometimes even in the same paragraph), woolly arguments and, most irritatingly, (at least in parts) insufficient rigour and clarity for us to make a serious determination of the merits of the proposals.

Question 1

7. Everybody surely broadly agrees with the criteria in paragraph 10 of the consultation document, in the same way that they broadly support motherhood and apple pie. Who could possibly disagree that everyone should “follow high-quality programmes of learning,” or that we need to “different[e] achievement in ways which are clear”?

8. Where we do not offer wholehearted support is where the Working Party has lapsed into more-or-less meaningless jargon, such as suggesting the need to ensure that “any reforms maintain the levels of challenge associated with the current system”.

9. Frankly, our young people deserve a more carefully thought-through, clearer, more succinct set of priorities that everyone can understand, and which summarise the key principles – that everyone should be able to take a course of study that suits their needs, which can lead to (a) an appreciation of learning and (b) a meaningful qualification.

Question 2

10. We find it difficult to comment sensibly on the proposals for vocational education, because the word “vocational” is used without any intellectual rigour.

11. As the document points out, many existing Higher Education courses are vocational. In fact, one of the main purposes of universities in the past was to prepare people for work in medicine, the law and the church. Medicine and law remain substantially vocational courses.

12. But the same paragraph talks of the “the growing popularity, and recognition of the potential, of vocational learning” and talks of “craft qualifications” in ways that hardly seem consonant with the ideals set out elsewhere.

13. Paragraph 26 of the consultation document begins by seeming to criticize the current situation because “nominally” vocational A-levels actually provide entry to Higher Education, but ends by calling for “reinforcing the role of advanced vocational and occupational learning as a viable route into HE as well as employment.” Either it is inappropriate for vocational A-levels to allow access to university or it is not; it cannot be inappropriate at the moment but appropriate in some undefined future scenario.

14. This fuzzy approach seems to be borne of an inability to call a spade a spade. Some people want to learn a respected trade, such as plumbing (where recent press reports have highlighted a shortage, and hence relatively high remuneration – upwards of £50,000 per year).⁵ They need high-quality genuinely vocational courses that enable them to be good plumbers, coupled with the same basics of numeracy, literacy and appreciation of learning that should be common to all. The fact that plumbers can now demand high salaries demonstrates that “parity of esteem” is brought about entirely by allowing individuals to play to their strengths, rather than artificially imposing criteria about what is or is not deemed to be “equivalent” to an A-level or other form of qualification.

Question 3

15. We certainly agree that young people currently undergo too much assessment and too many public examinations. A group of students with whom SBS interacted reinforced our view that children feel under the most enormous pressure to do well in exams, and that this not only has the potential to cause unnecessary anxiety, but also affects youngsters’ choice of subjects. Believing that subjects like physics and chemistry are “hard,” some youngsters choose what they think are easier disciplines. Whether they are right about the relative difficulties is irrelevant, because it is their perceptions that drive their choices.

16. We applaud the Working Party for setting out that there are different purposes of assessment, and for stating clearly that at different stages of the educational process, and for different people, there will be significant changes in the relative importance of the different purposes.

Question 4

17. We do not disagree with any of the priorities set out in Section E, but they seem so broad that we do not really have any grasp of what

the Working Party intends should actually happen to real people in real schools and colleges.

Question 5

18. Paragraph 47 of the consultation document describes practically every education programme imaginable. It does not really seem to add a great deal to the debate to point out that everyone will learn the basic core, and that everyone will then choose specialist subjects, as they do at the moment.

19. If the implication is that some young people are current missing out on parts of what should be the core by choosing disciplines which fail to provide those parts, then we see more validity in stating this approach. For example, it is possible that by choosing mathematics, chemistry and physics, students may avoid the need for extended argument or extended written work; or that by studying English, history and French, students can avoid the need to have any familiarity with the kind of scientific debates that dominate many aspects of modern life.

20. But the key here is in deciding what the core should be, not in the making the bland statement that there should be a core part of the educational system which will necessarily be common to all.

Question 6

21. Yes, the emphasis on specialism should increase between the ages of 14 and 19, but not to the unusually high degree that it does at present. In almost all comparable countries, students at the age of 18 or 19 would be studying more than the three subjects they study at A-level in this country.

Question 7

22. If, as the consultation document suggests, there is evidence that students are failing to gain basic skills such as literacy, numeracy and communication, then clearly there needs to be greater emphasis on these.

23. However, we suspect that this is a failure of the educational system below the age of 14. 14-year olds should be able to read (including much material written primarily for adults), to write, to do basic mathematics and to speak coherently. If they cannot, the difficulty should be urgently addressed lower down the system, although we accept that until it is, remedial action may need to be taken later in young people's education.

Question 8

24. The Working Party seems to have spent more time designing the structure of the diplomas than is warranted by the degree of certainty about the other aspects under consultation.

25. What matters is the quality and content of the education that young people are getting, and whether the assessment meets the purposes set out in paragraph 31 of the consultation. Whether something is called an A-level or one element of a Level 3 (Advanced) Diploma is utterly irrelevant.

26. While we do not disagree with the basic premise that qualifications should be available at different levels, we dispute the wording of which specifies that the diploma should make awards “at all levels from entry level to level 3”. This presupposes that “level 3” and the other “levels” are meaningful concepts, when the document has already established (in paragraph 10) that the one desirable aim is to “reinforcing the concept of 14-19 as a coherent single phase of learning, in place of the widespread perception of [arbitrarily] distinct phases”.

27. One thing with which we do agree is that there should be differentiation between elements of whatever qualification is finally awarded. If an employer or university is to judge someone’s suitability for a job or course, there is little point in having an overall score that masks the individual’s performance in those elements of his or her study that are most relevant to the particular job or course.

Question 9

28. SBS has always supported the broadening of the syllabus at the upper end of the age range 14-19.⁶ It is absurd that in the twenty-first century, it remains socially acceptable for people to joke about how they are useless at arithmetic but socially unacceptable to admit that one has not read anything by Shakespeare.

29. It is equally absurd that those who choose to study only sciences, mathematics and engineering can avoid the need to learn a modern language, or to compose extended, well-argued pieces of writing.

30. The curriculum up to the age of 18 or 19 should include, of necessity, some familiarity with each of the major areas of education such as mathematics and science; the arts and humanities; and languages.

31. However, as with so much in the consultation document, there is considerable vagueness about how the proposals will work in practice.

Question 10

32. We have serious worries about the argument for the reduction of effort in assessment due to the “economies of scale”. A diverse set of elements in a diploma will require a diverse set of assessments, and it is not good enough merely to say that assessment can be done less

intensively because the final outcome will be called a single diploma instead of several subject-based exams.

33. It will be essential to give credible scores to the separate elements of a diploma, partly because different employers and universities will require different information about the performance of individuals, but partly because individuals deserve to have that information themselves. It seems likely that, in order to integrate the various elements into a single diploma, there will be a need for *more* rather than less assessment.

Question 11

34. (a) Any programme that could last for five or more years without any kind of milestone would be somewhat bizarre, but we would assume that professional teachers were capable of making sensible judgements about how people were progressing compared to expectation

(b) Of course young people should be given “as much choice as possible” over their courses; the argument is about what is “possible” within a meaningful qualification; we believe that one of the advantages of baccalaureate-style qualifications is that they require some element of science, some element of arts, and some familiarity with languages.

(c) and (d) If people have real achievements, there should be very little difficulty in “certifying” them.

(e) There is little point in asking what weight should be given to institutional mobility if it is assumed that 50% of people will switch institutions at age 16. It is clearly essential that any new system can cope with this.

(f) We are not sure what element (f) is intended to mean.

(g) We assume that the “status and currency” of the diploma means whether or not it will be any good, and whether or not people think it is. If it is any good, students, employers and universities will recognise it. This seems to us to be an irrelevant attempt to promote this particular concept. *What matters is the quality of education that young people are getting.*

(h) This point seems to be more about the convenience of bureaucrats and administrators than what is likely to be best for young people

October 2003

Notes and references

¹ According to the *Lexis-Nexis* database, newspapers in the UK included 261 articles during 2002 that included the words “A level” and “gold standard”.

² *Science Teachers*, Council for Science & Technology, 2000.

³ *Times Educational Supplement*, 30 August 2002.

⁴ *Science in Schools*, 1st Report of the House of Lords Science & Technology Committee, Session 2000-2001.

⁵ *Daily Express*, 15 November 2002.

⁶ *Science Policies for the Next Parliament: Agenda for the Next Five Years*, SBS, 2001 [SBS 01/03]