

Royal Society of Chemistry response to the Leitch Consultation on Skills

The RSC is the largest organisation in Europe for advancing the chemical sciences. Supported by a network of 45,000 members worldwide and an internationally acclaimed publishing business, our activities span education and training, conferences and science policy, and the promotion of the chemical sciences to the public.

QUESTION 1 a Do you consider the current skills profile of the UK to be adequate? Please give details of why/why not.

For example, are there enough people qualified at a particular level or with specific types of skills? If you do not consider the skills mix to be adequate, what are the main skill deficiencies in the UK?

The Skills Network Group (SNG) of the chemistry Leadership Council has identified that at present “The chemicals industry has significant skills gaps at both plant operator and graduate levels.”

SNG Report - Skills for the 21st Century, Chemicals Industry, July 2004.

QUESTION 1 b What impact does the current skills profile have and what do you consider to be the relative importance of the issues that you have identified?

The SNG report also states that “..at present the industry has too few people trained and working at to a minimum standard of NVQ Level 3 (A level equivalent).

Upskilling the chemicals industry workforce to NVQ Level 3 is a major challenge for the industry.”

Because of the demographic profile within the chemical industry upskilling of the workforce is as important as ensuring appropriate skills for future employees.

QUESTION 2 a What do you consider to be the primary drivers changing the skills needed in the UK economy over the next 15 years?

For example, will global competition, sectoral and technological change, and shifts in consumer demand impact on the skills required in the workforce? Which of the factors that you have identified will have the greatest effect?

Global competition will undoubtedly have a major impact on the type of companies, and therefore the skills needs, that will remain or move to the UK. Technological change within organisations based in the sciences has and will continue to be a significant factor.

QUESTION 2 b **What do you expect the impact of these pressures to be on the types of skills that will be required?**

For example, will employers demand a minimum level of skills, perhaps including literacy, numeracy and ICT skills, from all workers; or will the main change be increased demand at the upper end of the labour market for employees who have technical skills or for particular types of graduates?

The SNG Report has advocated that the chemicals industry should develop a strategic plan for upskilling its workforce and develop a Gold Standard for the Chemicals industry workforce.

It is likely that in 10 years time the chemicals industry will require fewer but more highly skilled and technology literate employees who will be expected to work in a more flexible way.

QUESTION 3 **If education and training continues on its current course in the UK, are these future requirements for skills likely to be met? Please explain why/ why not and give details of the likely economic and social implications.**

The current situation with regard to university chemistry provision is a cause for concern. The recent closure of a number of university chemistry departments will mean that if demand for chemistry courses is raised through initiatives such as the *Aimhigher Chemistry :The Next Generation (RSC coordinated a bid for funding from HEFCE to support outreach activities in chemical sciences for those underrepresented in HE)* sufficient places may not be available. This initiative targets students who are currently underrepresented in HE and the opportunity for local access and part time provision will be very important for some of these students. Of particular concern is the geographic location of chemistry provision and the type of courses available. Part time provision and technically orientated courses in the chemical sciences have been significantly reduced in recent years.

The need to ensure that key skills are developed through the subject has been recognised and addressed in many university courses. The need for key skills, as articulated by employers, has in many cases now been incorporated into courses. The RSC has produced an Undergraduate Skills Record (USR) and a Postgraduate Skills Record (PSR) for the chemical sciences. The USR and PSR assist students in identifying the key skills they have developed during their studies. The USR and PSR are now widely used in chemical science courses (indeed other disciplines have also been keen to use the USR and PSR).

QUESTION 4 **What changes in the population's skills would have the greatest effect on improving the UK's productivity in 2020?**

For example, would greater impact be seen from increasing the numbers of people with high level skills and qualifications, or from reducing the numbers with low or no skills or those without basic literacy and numeracy skills? Would there be greater gain in improving technical skills or more generic skills such as communication and customer handling skills?

If one considers the research based sectors that make the greatest contribution to GDP e.g pharmaceutical/chemicals and aerospace then increasing the higher level technical skills, but this must be supported by the improvement of basic and generic skills particularly numeracy.

3. DEMAND FOR IMPROVED SKILLS

A prerequisite for increasing the stock of skills in the economy will be the desire of individuals of all ages to learn and their commitment to train. These additional skills will have a positive effect on national growth where employers demand and utilise a more highly skilled workforce.

QUESTION 5 **Is it necessary and possible to stimulate demand from individuals for improving their own skills? Please give details.**

For example, do wage increases received as a result of gaining extra skills provide adequate incentives to people to improve their skills? What would encourage people to learn and train in a way that is beneficial to them and the economy as a whole over the longer-term?

Wage increases may provide a valuable incentive to learn but the provision of appropriate courses available to the learner with the most convenient delivery method at a time and place convenient to the user is of utmost importance. Financial support for course costs from the government or employer is also a key factor.

The rigorous standards set by professional bodies and their associated designatory letters, such as AMRSC, MRSC and CChem from the RSC, should be used as benchmarks by employers and as an incentive for promotion/salary enhancement for employees.

QUESTION 6	Is it necessary and possible to stimulate demand from employers for skill improvements in the country/their workforce? Please give details.
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What drives employers' aspirations for a more skilled workforce? For example, do employers invest in skills in order to improve organisational and economic performance? If so, is demand for additional skills likely to be constrained by a lack of such benefits, insufficient information, or an inability to use the additional skills? Can demand be facilitated for example, by improvements in information and employer representative groups?

Within the majority of organisations employing chemical scientists, training and the level of skills are high priority. This is due to the nature of the work and in part to the regulatory authorities that some have to conform to. Again the use of the professional body qualifications and associated designatory letters should be enhanced.

The RSC has developed a continuing professional development (CPD) framework for its members and offers a wide range of CPD opportunities. We have recently introduced a suite of courses, Essential Skills Management, which is designed for postgraduates and those in their early years of employment.

QUESTION 7 a	How do you think that the <u>UK's future skill needs can be best met</u>? In particular, through the skills provided by (i) schools; (ii) colleges; (iii) universities; (iv) training providers; and (v) employers?
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Could the system to educate and train young people and adults be improved? If so, what changes would have the greatest effect? What should employers and employer organisations do?

i) Schools

The RSC has recently published a report on the current state of school laboratories (Cleapps) which provides particularly disturbing reading. The provision of modern laboratory facilities would both improve conditions of work for teachers and improve learning.

The other change that would have the greatest effect would be to increase the proportion of lessons in the sciences taught by graduates from within the discipline.

ii) Colleges

iii) Universities

The RSC has recently commissioned a report which indicates the current funding of university chemistry departments (Nigel Brown Associates) is significantly less than the costs of course provision, providing quantification of the additional funding required.

iv) **Training providers**

Some form of quality control should be required of private training providers. The RSC currently offers a CPD recognition scheme for courses designed for chemical scientists.

v) **Employers**

The RSC offers Accreditation of Company Training which is audited.

QUESTION 7 b	Do you think that organisations providing education and training should respond to the <u>needs of the labour market</u>? Please explain and give details of how this could be facilitated.
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For example, do these institutions and private providers need to be more flexible or responsive to the demands of individuals or employers and, if so, how could they do so?

Organisations providing education (schools, colleges, universities) must ensure that the education provided delivers the essential key skills e.g. numeracy, literacy, communication, handling information etc. However, it would not be appropriate for these organisations to gear their educational courses solely to meet the current needs of employment. The needs of employment are likely to change over a period of time and it is essential that the basic education provided remains a sound basis for any future training.

Those organisations that provide tailored training or vocational courses will need to be much more in touch with employment needs as the students will necessarily be closer to entering employment.

Employers should remain in close contact with all types of education providers thus ensuring that there is a two way flow of information keeping employers abreast of educational changes and vice versa. This is likely to be best achieved by continuing the work currently being done through professional bodies and employer bodies.

5. PRIORITIES

QUESTION 8	What are the <u>three</u> things that you think would have the greatest effect on the UK's ability to provide the skills required to benefit society and the economy in 2020? Please give details and reasons for prioritising the issues identified.
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For example, your answer could focus on types of skill, particular groups of people, or industry. You may also want to specify the role to be played by different organisations – government, employers, education and training providers.

1 Ensure that the potential of all young people is developed irrespective of social background or ethnic origin.

2 Increase the number of appropriately qualified chemistry and physics teachers in schools.

3 Fund universities fully to provide world class education in the sciences

QUESTION 9	Are there any domestic or international examples of good practice that you would like to bring to the Review's attention? Please give details.
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Examples of good practice from which the UK may learn, could include the way that other training systems are organised as well as individual case studies at an industry or company/organisation level.

The process of university reform in Europe (The Bologna Process) is largely being ignored by Government and institutions in the UK. It has the potential to deliver a more flexible approach to education in the sciences and raise standards achieved by the most able. Failure to engage with the process may make the UK a less attractive place for students, researchers and employers.

6. ADDING VALUE

As set out above, the Review's terms of reference are to report to the Government on what skills profile the UK should aim to achieve in 2020 in order to support improvements in productivity, economic growth and social justice over the longer-term. The Review will be looking at international experience and best practice. The Review team is also aware of the large volume of work already undertaken on skills. It will seek to build on this, rather than repeating previous analysis.

QUESTION 10	How would you like to see the Review building on the existing evidence base? Please give details.
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For example, are you aware of comparable studies to which you would like to draw the Review's attention; and are there 'gaps' in research that already exists that the Review could usefully address?

Skills Network Group of the chemistry Leadership Council Report Skills for the 21st Century – Chemicals Industry

QUESTION 11	Are there additional issues, not covered elsewhere in your submission but falling within the Review's remit, on which you would like to see the Review focus its attention? Please give details.
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COVER SHEET FOR RESPONSES

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Questions	Response Provided	Details of any accompanying documents
1 a	✓	SNG Report –Skills for the 21 st Century
1 b	✓	
2 a	✓	
2 b	✓	
3	✓	Chemistry: The Next Generation www.rsc.org/outreach Undergraduate Skills Record (USR), Postgraduate Skills Record (PSR)
4	✓	
5	✓	RSC membership pack
6	✓	RSC CPD Framework, Essential Skills Management courses Membership requirements – designatory letters
7 a	✓	RSC report on Laboratories, resources and budgets. RSC Report on Chemistry Teachers RSC and IOP report by PriceWaterhouseCooper The Economic benefits of Higher Education Qualifications? RSC CPD recognition scheme RSC Accreditation of Company Training
7 b	✓	
8	✓	
9	✓	
10	✓	
11	X	

Type of organisation: please tick all boxes that apply.

Private sector

Public sector

Voluntary sector

Employee representative
 v Other, please state **Professional Body**

Education/training provider

Government agency

Business/Employer

Regional

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Please tick box if you DO NOT want this response posted on the Leitch Review website.